HELSINKI SCHOOL OF ECONOMICS (HSE)
Department of Business Technology

COORDINATION OF NEARSHORED INFORMATION SYSTEMS DEVELOPMENT FROM A CLIENT'S PERSPECTIVE – CASE STUDY

Information Systems Management
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LÄHIULKOISTETUN SOVELLUSKEHITYKSEN KOORDINOINTI TILAAJAN NÄKÖKULMASTA – TAPAUSTUTKIMUS

Tutkimuksen tavoitteet

Tutkimuksen teoreettisen osan tarkoituksena oli ymmärtää aiempi tutkimus ulkoistetun sovelluskehityksen koordinoinnista ja eri tekijöiden mahdollisesta vaikutuksesta koordinointiin sekä löytää viitekehys empiriaa varten. Tapaustutkimuksena toteutetun empiirisen osan tavoitteena oli selvittää, mitä koordinointimekanismeja tilaaja käyttää toimeksiannoissaan Venäjälle sekä miten koordinaatiomekanismit ovat kehittyneet viimeisen kolmen vuoden aikana. Lisäksi tarkoitus oli ymmärtää kulttuurierojen mahdollinen vaikutus lähiulkoistetun sovelluskehityksen koordinointiin.

Lähdeaineisto

Teoreettinen osa perustuu ulkoistuksen, lähiulkoistetun sovelluskehitystyön ja sen koordinoinnin sekä Suomen ja Venäjän työkulttuurierojen kirjallisuuskatsaukseen. Tapaustutkimus perustuu tilaajan julkiseen aineistoon ja sisäisten koordinointikäytänteiden katsaukseen sekä tilaajan työntekijöiden puolistrukturoituihin haastatteluihin.

Tutkimusmenetelmät

Tutkimuksessa käytettiin kvalitatiivista lähestymistapaa ja yksityiskohtaista tapaustutkimusmenetelmää. Menetelmä soveltui tutkimuksen tavoitteisiin tunnistaa koordinointimekanismit sekä tutkia koordinoinnin kehittymistä viimeisen kolmen vuoden aikana.

Tutkimuksen tulokset

Tutkimuksessa havaittiin, että tilaaja koordinoi Venäjälle lähiulkoistettua sovelluskehitystä samoin kuin muutakin tuotekehitystään. Koordinaatiomekanismeista käytetyimpiä ovat säännölliset kokoukset, kehitettävien tuotteiden lokitiedostot ja pikaviestimet. Hyvät yhteydet Pietariin mahdollistavat tapaamiset kasvokkain. Tiimien väliset riippuvuudet ovat lisänneet kanssakäymistä tiimien ja sen jäsenten kesken tilaajan siirryttyä ketteriin ohjelmistokehitysmenetelmiin. Luopuminen komponenttiomistajuuksista on myös lisännyt tarvetta koordinointiin. Kulttuurierojen vaikutus koordinaatioon on vähäinen pitkään jatkuneen yhteistyön sekä yhteistyöhön osallistuvien tiimien ja henkilöstön pysyvyyden takia.

Avainsanat

lähiulkoistus, sovelluskehitys, koordinointi, Venäjä

CONTENTS

Abstract

In order to understand nearshore outsourcing and in particular coordination in nearshored software development work where the end result is a software product there is need for knowledge from several domains. The domains include information systems outsourcing, relationship between the Client and Vendor, coordination mechanisms and factors impacting coordination.

This thesis provides background information in the form of a literature survey for people involved in nearshored software development projects especially on the Client side. The attempt is to present research models that should deepen our understanding of coordination in nearshored projects. Experiences of one Finnish Client based in Helsinki from long term continuous nearshoring of complex software development to a Russian Vendor based in St. Petersburg are described through interview analysis of key persons involved in the cooperation. In addition coordination mechanisms of one, still ongoing software development project are investigated in detail to give insight into coordination practices of short-life-cycle development work in a multi-site environment.

According to the research findings the Client coordinates nearshored software development work following the same company procedures as in internal projects. Most coordination occurs between team members and teams. Among the most used coordination mechanisms are regular meetings, product logs and instant messaging. With the adoption of agile methods three years ago there has been a significant increase in all interactive communication, in particular face-to-face. Good connections between Finland and St. Petersburg make this feasible. Since the latest agreement between the Client and Vendor 1.5 years ago interdependence has been growing with the increased independence of software development teams. The recent abolishment of component ownerships is another reason for increased need of coordination. Because of permanent teams and staff on both sides organizational cultures are compatible.

Keywords

nearshoring, information systems development, coordination, Russia

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1 INTRODUCTION

Research Motivation

Nearshoring is typically assumed to be as a less risky choice for outsourcing abroad compared to offshoring because of smaller geographical, physical, or cultural distance. Whenever distances are bigger costs to manage and coordinate work tend to rise. Therefore, it has been surmised that if a country to which work is outsourced lies close costs should remain lower than in the case of outsourcing to countries farther off from one's home country,

Everyday information systems development work is about processes, how people and projects are being managed and targets met with resources available. Problems, if any, are besides costly, also risky regarding the success of the work. On the other hand, costs caused by coordination activities should be in proportion to the task and resources. This means that mechanisms chosen as methods of coordination have a central role in a Client-Vendor relationship.

In any relationship participants' experience contributes alleviating inevitable tradeoffs in everyday work. If the relationship is run on a long term basis and people involved for the most part remain the same, there is a chance that experience brings along trust into the relationship enabling shared work values and practices with time. Expert organizations may find this easier; in the world of technology the engineering language is much the same across cultures due to similar education.

The purpose of this exploratory study is to contribute to our knowledge of outsourcing IS (Information Systems) development nearshore, in this case to Russia. More specifically, the focus is on coordination mechanisms used by a Finnish Client when cooperating with a Russian Vendor that offers software development offshore. Coordination is regarded as one of the key characteristics of IS development and has been found to be one the main sources of success.

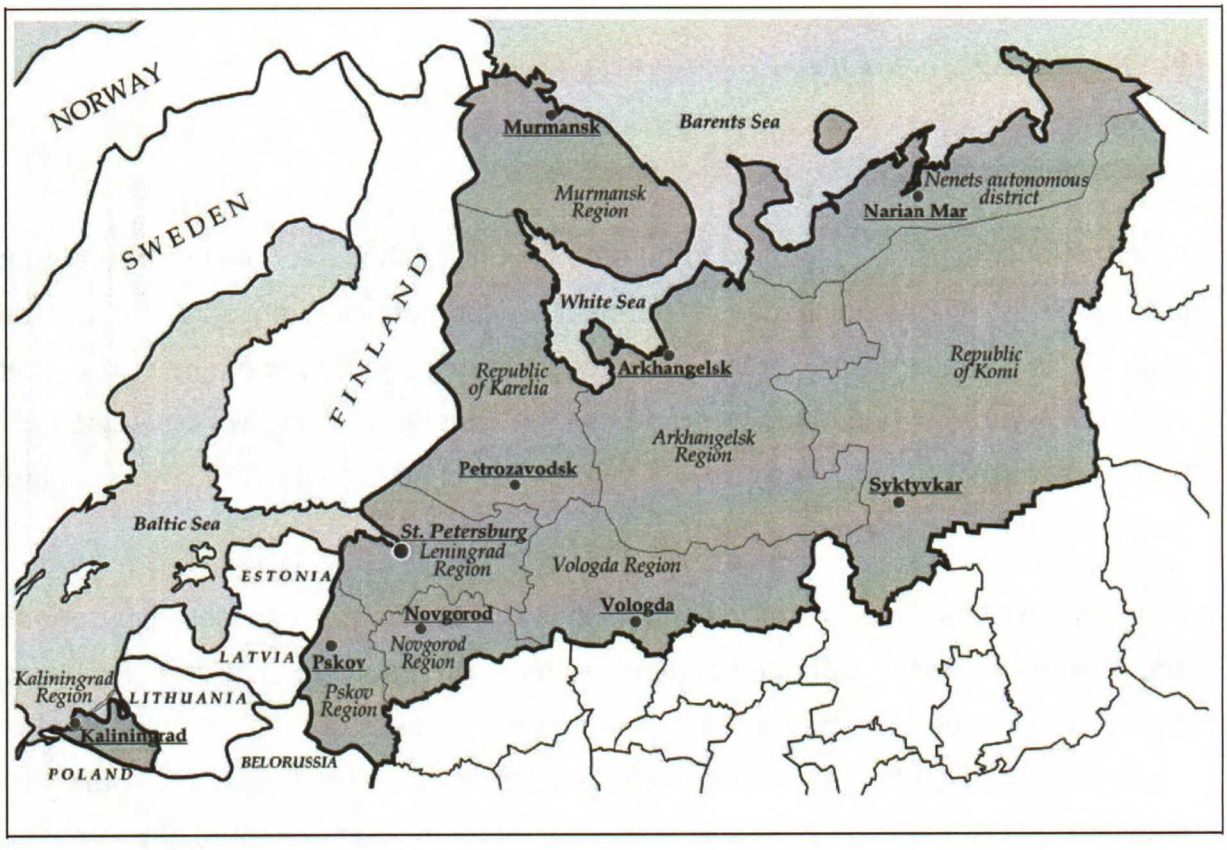

Figure 1. North-West Russia (Dudarev & al 2004, 17)

Coordination mechanisms are universal but their application varies according to the context. Business practices are affected by cultural characteristics of each participating country and company, meaning that relations between companies across the border inevitably are to a varying degree distorted by cultural differences, depending largely on cultural distance between countries. Examples of such phenomena are for instance the role of personal networking, views on hierarchy or taking responsibility, or team working experience in respective countries. Coordination mechanisms would have to be adapted to fit the context in order to minimize goal incongruence.

North-West Russia, traditionally the most important software engineering region in Russia, lies geographically close to Finland. It is also physically close in the sense that communications from Finland to the main city of the region, St. Petersburg, are frequent, allowing easy arrangement of meetings. Because of the long history together the two countries should be culturally fairly close. IS nearshoring from

Finland to Russia has recently gained increased popularity among Finnish companies as reported by Konttinen in Helsingin Sanomat 27.5.2008.

1.1 Research Objectives and Scope

The objective of this study is to understand how IS development outsourced to Russia is coordinated by a Finnish Client. Secondly, the aim is to understand better the possible impact of cultural differences between Finland and Russia on coordination practices.

Coordination practices are studied from the perspective of a Finnish Client's that has been outsourcing IS development to a Russian Vendor for over 10 years.

Research questions for the theoretical part are:

- How nearshoring differs from other outsourcing options?
- What coordination mechanisms are used when outsourcing information systems development?
- What factors, in particular related to culture, there are that could affect coordination mechanisms?

Choices and decisions involved in IS offshoring as a strategy option and part of overall management are outside the scope of this study. Similarly, we do not here reflect on project management issues in IS development but instead discuss coordination in the context of relationship management from the Client's perspective. Of the many management processes involved in offshore outsourcing the focus lies here on coordination, in particular on the mechanisms used in coordination, i.e. how information systems development work outsourced nearshore can be coordinated by the Client in practice and how cultural factors possibly affect coordination.

Research questions for the empirical part are:

- What coordination mechanisms are used by the Client when outsourcing software development work to a Russian Vendor?
- How coordination evolves over time and what issues affect the coordination mechanisms used?

The **single case study** deals with a continuous outsourcing relationship between one Client and one Vendor as seen from the Client's perspective. The Client has outsourced to the same St. Petersburg-based Vendor for over 10 years now and was therefore chosen for the case study. It takes time before coordination practices in a Client-Vendor relationship start to develop. The focus lies on the coordination of joint development teams where both the Client's and Vendor's employees work together. The team members from both sides have for the most part remained the same during the years.

It is outside the limits of this thesis to discuss the characteristics of an IS development project; how contracting is best done or how it should be managed successfully. The enduser perspective also lies outside the scope of this study.

1.2 About the Study

The theoretical part of this study outlines prior research on Information Systems (IS) nearshoring as a phenomenon and a strategic choice. Managing cross-cultural relationships like outsourcing has two faces: trust is necessary but risk is involved. This affects coordination mechanisms when speaking about outsourcing software development offshore. Any relationship is interdependent and reciprocal but cultural differences are an additional challenge for both the Client and Vendor. In this research, the perspective is the Client's only.

Transaction cost framework is often used to describe relationships between the Client and Vendor. According to TCE (Transaction Cost Economics) coordination costs together with production costs form transaction costs. To get a more dynamic view on IS nearshoring and to describe relationships as social processes, there have been made interdisciplinary studies on coordination activities. According to coordination theory coordination is seen as the process of managing dependencies among activities.

Coordination mode can be formal or informal and the degree of interpersonal interaction may vary. Coordination is related to control: both affect the overall performance; both use similar governance mechanisms. However, there is a difference: coordination focuses on managing interdependencies among individuals

or activities, whereas control focuses on improving performance relative to goals. (Sabherwal & Choudbury 2006, 189-191)

Coordination mechanisms and practices found in IS research are described. An overview of distance dimension and its possible impact on coordination activities is given. Geographical, physical and cultural distance is discussed from the perspective of the two countries involved, namely, Finland and Russia.

The main factors affecting coordination mechanisms detected in prior IS research are discussed. In addition, distance factors ensuing from physical, cultural and political distance are described. Related to cultural factors reference is made to prior studies on differences between Finnish and Russian work values and business practices.

The theoretical part is concluded with a summary of literature review listing the definitions and research models found appropriate for this study. Conclusions from literature review with respect to the empirical research are made. The conclusions serve as the basis for the themes treated in semi-structured interviews in the empirical part.

The case study has two main phases, namely, analysis of written material and secondly, analysis of interviews performed. The research unit is the Client's organization, i.e. the staff in charge of systems development, coordinating information systems development in the nearshoring relationship between the Client and the Vendor.

The empirical part of the thesis begins with a brief introduction into the Client's business. Also the nature of the Client-Vendor relationship is shortly described. The first phase in the case study is comprised of a description of coordination mechanisms used by the Client in general. The analysis is based on internal documentation received from the Client. The second phase of the empirical part, the analysis on the Client's coordination methods as used in practice is based on seven semi-structured interviews lasting 1.5 to 2 hours each conducted with employees who have been involved in coordinating IS development nearshored to Russia.

Both the Client and the Vendor remain anonymous. Therefore, all analyses and findings of both phases in the case study are presented as overviews.

The thesis concludes with discussion on research findings.

2 OUTSOURCING IS DEVELOPMENT

There are basically three main perspectives to look at outsourcing as a phenomenon. According to resource-based theory a company gets its competitive advantage not only by having distinct products but also by having some way or other distinct resources from other companies. On the other hand, the resource-dependent theory views the firm as being involved in a network of relationships, an ecosystem of suppliers and others providing resources needed for business. Competition of resources is thought to be as tough as it is of market opportunities. Indeed, competent people capable of carrying out demanding information systems development are being looked for by many enterprises around the world.

The third theoretical perspective is based on transaction cost theory. Vendor-related contracting and management costs are called transaction costs, or coordination costs. When one performs a transaction there is always some kind of costs involved. In the case of nearshoring, distance factors such as culture may increase coordination costs less than in the case of offshoring to countries farther off from the Client's home office. In IS research, the importance of cultural factors has been recognized but as a variable it has been less present in offshore outsourcing research models.

2.1 IS Outsourcing

2.1.1 IS Outsourcing as a Phenomenon

The main costs in the business of software development derive from labour. If one would wish to significantly reduce software development costs the obvious solution is to cut costs for personnel. Outsourcing is one of the ways businesses can try and accommodate themselves in highly competitive environment where time-to-market is decisive for success. Business has become global and work is outsourced globally. It is possible to choose the location to which to outsource more or less freely.

Information Systems (IS) outsourcing as a phenomenon started with big companies in the U.S. during the mid-1980s expanding later to smaller companies and other

parts of the world. Outsourced tasks were first often simple coding that is fairly easily managed from far and the deals were typically made between one Vendor and one Client. The Client and the Vendor were located in the same country.

Since then IS outsourcing market has grown immensely. The Client and Vendor can have their bases in different countries. Deals have become more complicated and tasks can involve multiple Vendors and multiple Clients. Contracting has been evolving into partnerships and alliances and we may speak today for instance about co-sourcing or multi-sourcing. There has been a move from simple cost-savings transactions towards value-based outsourcing. On the other hand, Vendors are striving to move forward in the value chain. Web and eBusiness outsourcing enable virtual projects between Clients and Vendors across the world. Outsourcing as an activity has definitely become global.

Before continuing into discussing drivers and inhibitors for IS outsourcing and further into the issue of outsourcing nearshore, it will be useful to clarify some of the most frequently occurring terms that will come up later in this thesis. We start with **outsourcing** and **offshoring**.

The two terms are often used interchangeably but they represent two different dimensions. By outsourcing we mean that other firms take over operations that were previously conducted within the firm. Relocation is not a requirement for outsourcing. Offshoring is understood to mean relocating activities from one country to another but not necessarily from one firm to another. For a summary of possible combinations please see Figure 2. (Ali-Jyrkkö & Jain 2005, 1)

		Outsourcing	
		No	Yes
Offshoring			
No		I No changes	II Moving activities to other companies without relocation
Yes		III Relocation of activities to other countries within the same corporate	IV Relocation of activities to other companies in other countries

Figure 2. Combinations of Outsourcing and Offshoring (Ali-Jyrkkö & Jain 2005, 1)

By **nearshoring** it is meant sourcing activities such as software development to a foreign, lower-wage country relatively close in distance or time zone (or both). The Client is expected to benefit from one or more of the following constructs of proximity: geographic, temporal, cultural, linguistic, economic, political, or historical linkages. (Carmel & Abbott 2007, 44) Nearshoring and offshoring as terms both were originally used in the context of fishing and other ocean-based activities before their adoption into business vocabulary in the 1990s. Offshoring occurs more frequently than nearshoring.

IS (Information Systems) and **IT (Information Technology)** also have overlapping usage. IT in its broadest sense describes a collection of several information systems, users, and management for an entire organization (e.g., Turban, McLean and Wetherbe 1999, 19). IS refers to systems or applications that store, process and formulate data into information. Therefore, since the interest in this thesis lies on the development of such systems or applications, and more specifically, on the management of such development when outsourced nearshore, the term IS will be preferred in this context.

IS outsourcing largely escapes definition since there is a wealth of sourcing options and contents available in the marketplace and the degree of their complexity is on the increase. Goles & Chin (2002, 226) have a broad view on the IS outsourcing as a phenomenon, which also represents a summary of previous definitions in prior research: "IS outsourcing is broadly defined as contracting with one or more third party the Vendors for the provision of some or all of an organization's IS functions". "Functions" implies here an activity, process, or service. Tangible products or resources are excluded from this definition. If a Client purchases an Enterprise Resource Planning (ERP) solution from a Vendor, it is not considered IS outsourcing. When a Client purchases implementation of an ERP solution from a Vendor, it is considered IS outsourcing.

As to the variety of outsourcing options, again there exists a plethora of categorizations and taxonomies in literature. To take an example, body shop outsourcing (a.k.a. body shopping) is generally used in everyday business language to denote outsourcing where the most common type is the use of contract programmers that is managed by a Client. Usually it is about a short-term

arrangement. Or, a project or part of it can be outsourced; development of a new system, up keeping of an existing application, handling recoveries, or managing network; i.e., whenever a Client remains the one that takes charge of management and is responsible for the outcome, we can speak about IS outsourcing. (e.g., Goles & Chin 2002, 226)

There is evidence on differences in the management of **information systems development (ISD)** depending whether it is internal or outsourced, even though most prior literature in ISD is based on internal projects. (e.g., Choudbury & Sabherwal 2003) Generally it is perceived that in the context of outsourcing it is more difficult to monitor the Vendor behavior than in the context of insourcing. Often there is no earlier relationship between a Vendor and a Client. An activity ISD tends to be complex even when internal; when outsourced offshore, the complexity is further enhanced because of more conspicuous cultural differences coming from both organizational and national reasons.

Finally we come to the definition of **the Client** and **the Vendor**[1] in the context of nearshored outsourcing. The definition emphasizes the characteristic nature of a Client- Vendor relationship being dependent on each other: The Client refers to the individual(s) or teams of individuals in a Client's organization that are responsible for managing ISD. The Vendor refers to the individual(s) or teams of individuals responsible for executing ISD. The overall context is a contract between two different organizations, that of a Client's and that of a Vendor's. (Choudbury & Sabherwal 2003, 292). Consequently, when speaking about the Client or Vendor in this study we thus refer to people.

2.1.2 Drivers and Inhibitors of Outsourcing

At the beginning Information Systems (IS) outsourcing largely adopted the model taken from outsourcing manufacturing. Costs were first said to be the major driver. Later IS outsourcing has begun to evolve towards partnership-like relationships. In IS outsourcing there are today virtual networks where people from different locations

[1] The notion "the Vendor" has lately become pejorative and it is therefore much replaced by for instance "supplier". However, in this research we use the notion "the Vendor" the way it is generally still understood in IS research.

can work together virtually over the net. Costs still have a role but not the same way as they used to.

There are different starting points within IS industry and key drivers may differ, too. Kyöstilä & Cardwell (2005) have found in their study on evaluating the way Finnish software companies think of outsourcing opportunities that the most important factor driving the outsourcing decision is the desire to achieve "resource dynamism" meaning that managers seek to be able to more freely add or subtract from their development resource base at a short notice. Second follows a lower wage rate that is usually the most cited reason for offshoring in literature but not in Kyöstilä & Cardwell's study (2005, 3-5). These findings have relevance to this thesis because the Client in the case study represents software development industry that produces software packages.

Generally speaking, when outsourcing is carefully prepared in advance and properly managed it can deliver many benefits. While getting advantages such as flexibility or cost reduction, offshore outsourcing leads to evident disadvantages such as an increased need for coordination, which in turn tends to increase costs. Difficulties in monitoring the performance may induce costs to the extent that achieving the desired mean savings from global outsourcing around 30% is in danger. Flexibility can suffer, too, because of too stiff contracting structures, or power may shift to the Vendor after contract negotiations has been closed.

The advantages of offshoring are in general the same as in outsourcing. The difference is the distance between the locations of the Client and the Vendor. When speaking about offshoring cultural issues are more often mentioned as inhibitors than in outsourcing. Figure 3 summarizes the effect of drivers and inhibitors on the willingness to offshore:

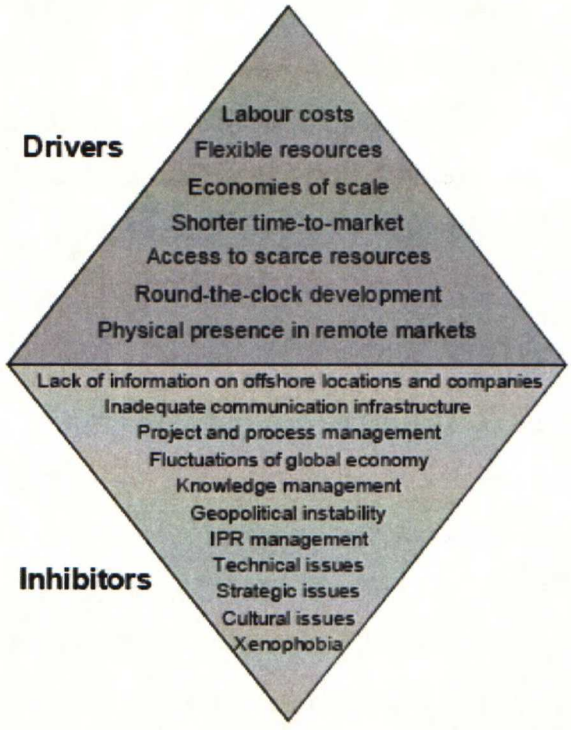

Figure 3. Drivers and Inhibitors of Offshoring (Kyöstilä & Cardwell 2005, 13)

Kyöstilä & Cardwell (2005) have made their study from the viewpoint of software development industry, which explains inclusion of factors as for example "round-the-clock-development".

2.1.3 Consequences of Outsourcing

Cost factor has remained as one of the main topics in the discourse around outsourcing. However, the perspective has in many cases moved to transaction costs that have often turned out to be higher than expected. Managing outsourcing and in particular offshoring has been found more tedious and at the same time costlier than expected. There have even been cases when proper management has been neglected, in the false expectation that everything will run smoothly in any case (Davis & al 2006, 778; Choudbury & Sabherwal 2003). When searching reasons for failure in some cases, cultural differences have often been blamed, which is one the reasons why nearshoring started to draw attention at the turn of the century. It has been thought there might be less cultural factors involved than in the case of farshoring.

The size of companies involved in offshore outsourcing can be a factor that makes a difference. Operations such as outsourcing are easier to govern for big companies that have the necessary machinery and have built up respective structures ready for expansion in advance. For smaller software houses the step to start offshore outsourcing is bigger similar to many other business operations (e.g., Kyöstilä & Cardwell 2005, 33).

Wages have gone up in many popular offshore locations close to Finland such as Estonia or North-West Russia. Vendors have been able to grow their business and often cherish hopes for more ambitious projects and tasks than before, for instance Vendors may want to take part in designing architecture or deliver software fully tested. Vendors have adopted processes from Clients and, quite understandably, also want to develop their business further away from simple coding. Cooperation models are being transformed accordingly from ad-hoc short term contracts towards continuous long term relationships for the simple reason that building up competence is time-consuming on both sides.

2.2 IS Outsourcing Nearshore

2.2.1 Nearshoring Option

For some years now there has been a noticeable pattern emerging that has actually brought along the term nearshoring: Western European countries send their outsourced work to [2]Eastern Europe, whereas the U.S.A. sends much of its work to Mexico and Canada (Davis & al 2006, 776). Nearshore software outsourcing can be regarded as a subcategory of offshore software outsourcing. Nearshoring as a construct emphasizes location and proximity as opposed to the prevailing offshoring archetypes of location transparency and irrelevance of distance and time (Abbot & Jones 2002; Carmel & Abbott 2007). Proximity is known to be critical to managing people and creating relationships but it is somewhat problematic as a term. To take an example, India may be located far from Great Britain but it can however be

[2] There is variation in literature regarding the contents of the notion "Eastern Europe". In some sources it includes Russian Federation, whereas in others not. Occasionally the meaning of "Eastern Europe" has been left unspecified altogether.

measured to be close to Great Britain because of joint history, institutional structures, and language.

The concept "nearshoring" is often used as a kind of a brand by countries attempting to challenge already long established offshoring countries even though proximity or location would not be that closer compared to India. There are other similar dimensions of nearshoring and many as vague as the notion about India. It would be perhaps more accurate to consider the actual differences between potential offshoring locations rather than proximity or location as such. This approach on nearshoring as an option is in line with the interpretation of cultural distance where the starting point is what differences and similarities there are to be found.

For outsourcing offshore, or nearshore for that matter, there are various models and many are company-specific as such, but after scrutiny there seems to be always a generic trade-off existing as Gurung and Prater (2006, 31) have noticed in a report called "Silicon Valley Outsourcing" (2004): the trade-off between the desired cost savings and the degree of operational risk contributed by the offshore facility; degree of control and desired cultural alignment with the offshore facility; degree of flexibility and scalability required; and required speed of execution.

Besides costs additional reasons given for choosing a nearby country above other potential countries often seem to be connected with minimizing risks (e.g., Carmel & Abbott 2007). It is evident that a certain amount of uncertainty and risk can be regarded characteristic to any outsourcing relationships both from a Vendor's and Client's perspective. Risks mentioned in managerial discourse related to nearshoring often seem to have something to do with perceived differences in business practices starting from business ethics to punctuality rather than cold facts. Perceived differences obviously derive much from cultural differences between a Client and Vendor. However, in the case of nearshoring the chances are generally considered better for a low risk level than in farshoring.

Regarding outsourcing options there are occasions when it might not be left many choices for a Client. Because of the Client's own obligations to his own customer the Client simply may have to choose any Vendor which is capable to offer the type of competent resource needed that is available at the time required. In those cases it

does not weigh much where the resource badly wanted may be located, nearshore or offshore. Timing and/or quality overrides cost, also because the Client's competitor might be chasing exactly the same type of resource.

To conclude, it is possible that nearshore opportunities have more relevance to most high-growth software companies than shoring farther off, as Kyöstilä & Cardwell summarize in their report on Finnish venture-backed software companies commissioned by Sitra (2005, 6). Competence is highly valued above costs. Also Krishna, Sahay and Walsham (2004, 64) report from their five-year long case studies that because of major efforts involved in cultural adaptation, physical proximity and a similar European mindset attracts for instance Norwegian outsourcers to prefer Russian software suppliers instead of Asian companies. Distance might make a difference after all at least for software industry.

2.2.2 Nearshoring to Russia

In literature there can be found evidence on the reasons why Russia is preferred as a choice. Many seem to repeat that Russia is good for creative and sophisticated short-term tasks (e.g., Beckett 2007, 2; Cusumano 2006, 33) but not for less creative and long-term projects. The well-known legacy of Soviet technical skills is generally thought of as attractive but this may also be a handicap; Russians have a tendency to treat software as a science in the first hand. (Cusumano 2006, 33).

According to a report of Deutsche Bank Research from Aug 14, 2006 on Nearshoring to Central and Eastern Europe (CEE) the region will establish itself specifically in the segment for more sophisticated services, not just because of the geographical, cultural or linguistic closeness, but also because wages in the CEE region – including Russia – are mostly higher than in standard offshore locations such as India. A nearshoring location like CEE becomes more appealing as the intensity of the communication desired increases, concludes the writer of the report, Thomas Meyer (2006).

Unfortunately, recent academic research that would address Russian offshore industry, its successes and shortcomings, is scarce, the main exceptions being benchmarking by Heeks and Nicholson (2002) and Carmel (2003). Hawk and

McHenry (2005) have consolidated a list of pluses and minuses detected of Russian offshore industry as follows:

Pluses:
Excellence of Russia's IT human resources, e.g. in-depth technical skills, R&D experience, experience with complex systems
Excellent education system
European/Western culture
Location near to Europe and the United States' east coast
Low labour costs

Minuses:
Inexperience in offshore software development; poor understanding of business practices and project management
Poor English skills
Difficulty of visiting Russia due to visa requirements
Bandwidth cost; deficient telephone and data communications infrastructure
Lack of certification organizations and CMM certified IT firms
Offerings too narrow; too little forward-looking strategic planning
Poor marketing capabilities; lack of a campaign; poor foreign representation
Poor business environment as to intellectual property protection, tax and labour laws, perceptions of corruption and instability
Lack of industry associations
Lack of meaningful support by the federal government for the offshore industry
Lack of world track record; perceptions of software piracy
(Hawk & McHenry 2005, 32)

Since the year 2005 there has been considerable progress in many issues mentioned above. Bandwidth connections have improved, and so have English skills, too. Certification and legislation have advanced. On the other hand, wages have been on the rise, particularly in Moscow, and the implementation of new Western standard legislation is slow. There are views that the small size of most Russian IT firms is still hindering progress. There have been many E-programmes going on in Russia lately, notably the political initiative Electronic-Russia 2002-2010 in order to support software industry.

Major managerial assessments reporting on countries and their suitability for offshoring Russia continue rating Russia as "Challenging" regarding business environment as a whole and IT industry in particular (e.g., CIO's classification, Overby 2006), while for instance India gets labels "Leading" or Ireland "Declining". Russia is an economy in transition. After the collapse of the Soviet Union, the country has been in transformation in all respects of economy and life. Much has been conceived but transformation still continues.

McKinsey has predicted that offshoring activity in Eastern Europe could triple to more than 130 000 jobs by the end of 2008. Currently only 1 % of the world's total outsourcing spend – worth £15bn – is located in Eastern Europe. The region emerged as one of the favorite locations for Western European companies to invest in between 2004 and 2006. (Beckett 2007, 1)

In the survey made among Finnish software SMEs (Small and Medium sized Enterprises) by Kyöstilä & Cardwell (2005) the most important criteria for location in offshoring is competence level of workforce. However, English skills, wage rates, Intellectual Property Rights (IPR) enforcement, and political stability are almost as important criteria. Time zone or presence of competitors is less important. Based on the results the countries in Table 1 have been scored from 1 to 6 where 3.5 is the neutral point. Only six countries pass that point, among them Russia.

Farshore countries	Average score	Nearshore countries	Average score
India	3.9	Estonia	4.7
China	3.1	*Russia*	*4.1*
Ireland	3.1	Latvia	3.9
Philippines	2.5	Lithuania	3.9
Israel	2.4	Hungary	3.6
Malaysia	2.3	Poland	3.3
Singapore	2.3	Czech Republic	2.9
Mexico	1.9		
Canada	1.9		
Brazil	1.8		
South Africa	1.8		

Table 1. Attractiveness of Different Offshore Locations (Kyöstilä & Cardwell 2005, 38)

The interface between outsourced and in-house elements is important for the success of the software development. Unfortunately, research on evaluating the division of information systems development between Russia and Finland is lacking. We cannot know how far in the value chain outsourcing is typically advancing in the case of Russian offshore Vendors. However, there is recent empiric information on the division of information systems development taking place between Finland and India available in the research of Ali-Jyrkkö & Jain (2005) as presented in Figure 4.

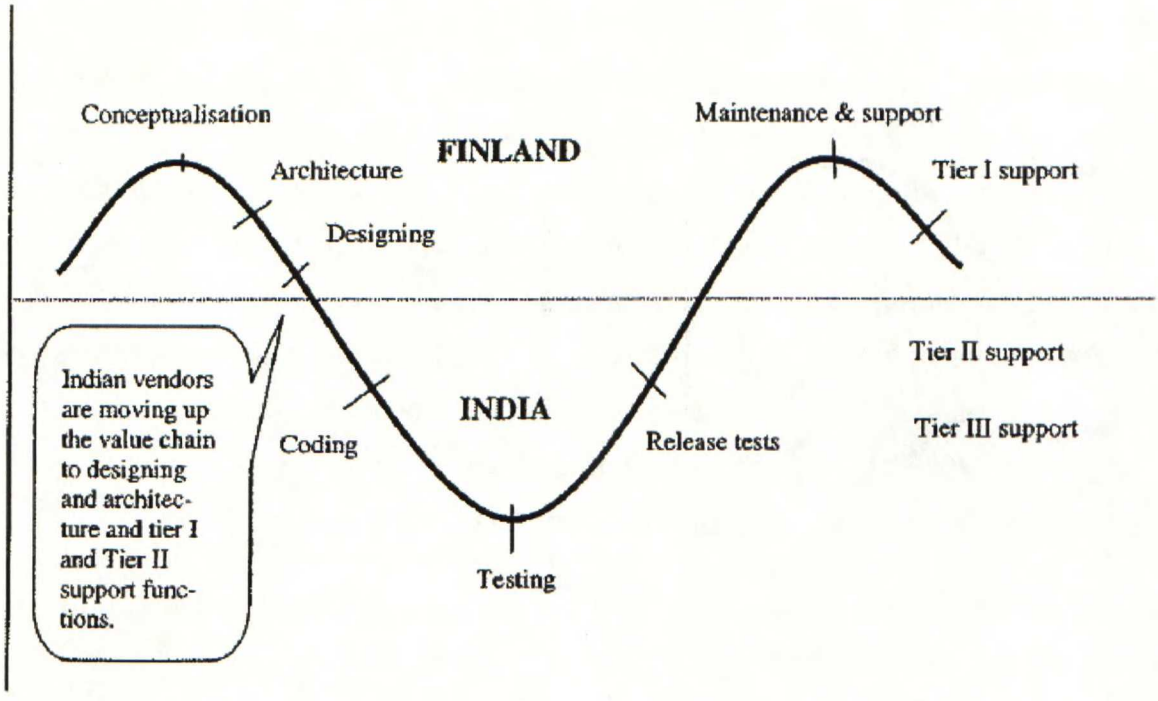

Figure 4. Division of Work between Finland and India in Outsourcing Software Development (Ali-Jyrkkö & Jain 2005, 10)

Figure 4 follows the traditional waterfall model of software development work and the assumption behind work division is that the main reason for outsourcing is to minimize development costs.

2.2.3 Business Distance

In prior research there is evidence both for and against the importance of distance. For instance, it has often been assumed that technology can overcome possible problems deriving from distance. People feel they are closer to each other when they are able to communicate frequently in many ways despite physical distance.

Problems ensuing from culture can be viewed from the perspective of differences that bring along difficulties into the relationship between a Client and Vendor. People are not similar to each other, neither are regions or nations. Differences tend to grow bigger as distance grows larger. Some studies on distributed software development have documented that distance introduces difficulties due to issues of communication, control and supervision, coordination, creating social bonds, and building trust, as reported for instance by Carmel & Abbott (2007, 42).

From managerial point of view it all comes down to analyzing attributes in each case, i e the attributes of the task that is to be outsourced and on the other hand the attributes of the location where a Vendor has its base. In order to be able to assess the situation at hand, one has to understand what the similarities and differences would be. In Ghemawat's CAGE Distance Framework (2001, 140) there are four distance dimensions: cultural, administrative, geographic, and economic, each having attributes that tend to create distance. The importance and weight of these attributes varies depending on the industry or product in question. To take an example from cultural distance, the attributes are: differences in language, ethnic background, religion, or social norms like business practices.

Classical location theories have stressed the importance of cost minimization or profit maximization in location choice. Cultural distance between countries is a widely used construct in international business. Any theories of national cultures have their limitations regarding for instance the presence of subcultures (for critics see for instance Gurung & Prater 2006, 32-33) or sometimes strong regional cultures within each country. The Russian Federation is a representative case of dangers in case of too a simplified view of national culture on a country. The two major cities of the Russian Federation differ from each other in business culture and the regions in the vast country each have their own strong characteristics.

The spatial model of Gabrielsson, Eronen and Pietala (2007) has been based on the idea that internationalization and globalization are spatial phenomena. When outsourcing offshore target countries or regions are not by any means empty spaces. There are various subcultures besides national and regional cultures. Within companies and institutes there are organizational cultures. We can thus speak about **business distance** including factors such as:

a) physical distance (geographical proximity, transport costs, delivery times)
b) cultural distance (languages, religions), and
c) political distance (corruption levels, country risks).
(Gabrielsson & al 2007, 7-13)

In managerial discourse some industries have been found to be more sensitive to distance than others. There are some well-known high-profile disasters like Wal-Mart's case in Germany signaling that food culture difference may have been a major cause for not being able to succeed. Even though the evidence on the importance of

distance factors is more on the anecdotal side, traditionally much used techniques such as Country Portfolio Analysis (CPA) cannot be trusted in everyday business making. Such analyses tend to ignore costs and risks of doing business in a new market where culture differs from that known to entrant beforehand.

In the context of information systems development nearshoring to North-West Russia physical distance can be assumed to be less significant than other distance factors since Finland and North-West Russia are close neighbors. Connections are good also in telecommunications. Data security may pose problems but can for the main part be solved by technology. Both physical and political factors need most attention when making the strategic decision whether to outsource, to which country and to which company.

For the notion **culture** there are innumerous definitions to choose from in the literature. We will view culture here as originally defined by Hill (1999, 67) in his book on international business and as quoted by Gurung & Prater (2006, 37) in their introduction of a research framework for the impact of cultural differences on IT outsourcing. In their study, culture is viewed encompassing both national and organizational cultures; "a system of values and norms that are shared among a group of people and that when taken together to constitute a design for living". The possible impact of subcultures is present in this definition, the most important of them being in this context the organizational subculture prevailing in the Client's and Vendor's organization, respectively.

After an information systems development contract has been made between a Client and Vendor, the main distance factor that may impact the relationship between the Client and Vendor – and thus the execution of the contract – is culture. This is not to say that culture would be without a role in the decision-making phase, but from the point of view of managing an offshoring relationship already running cultural factors are present in everyday work. When renewing a contract or reconsidering outsourcing decisions, experience from cultural differences may also have a significant role.

3 COORDINATION OF NEARSHORED IS DEVELOPMENT

In this Section we go into the relationship between a Client and Vendor. From the three main groups of actors involved in nearshored Information Systems (IS) development – end-users, the Client's personnel and Vendor's personnel – we take the viewpoint of the Client's personnel and thus look at the Client-Vendor relationship from the Client's perspective. There are three different approaches to the notion "relationship", i.e. from the field of organization theory, marketing, and IS. Discussion is here based on the views that have foremost been taken up in IS research.

A relationship has a life-cycle of its own; meaning that it develops with time. A relationship can be characterized by two kinds of factors, namely attributes and processes. One of the processes is coordination where various mechanisms are in use in order to be able to manage the process. Coordination mechanisms need to be adjusted according to the context. In the case of nearshoring, one of the relationship attributes is culture that may impact the type of coordination mechanisms used.

3.1 Relationship Management from the Client's Perspective

3.1.1 Offshore Outsourcing Management

Outsourcing relationships are by no means simple because it involves crossing borders between organizations, and in the case of nearshoring, even countries. In the context of business-to-business, choosing outsourcing as an option means a move from traditional market-driven transactions to a new form of business exchange that could be called relational (Lambe, Spekman and Hunt 2000, 213). Partners develop relationship norms and become more dependent on each other with time. Variables like trust begin to gain value. (ibid, 215) Arms-length relationships are easier to define contractually whereas in a relational exchange formal written contracts lose importance and other means have to be taken into consideration. It usually involves people and how they are behaving.

It is significant that behind much talk around outsourcing there is a paradox. Outsourcing is being regarded as a competitive imperative and bringing cost savings. Market efficiency is touted but the applicability of outsourcing on a broad scale

depends on non-market, human trust building relationships. (e.g., Klein 2002, 35) In essence it is, after all, about the way how the individuals involved in the outsourcing process perceive outsourcing, how they accommodate themselves to it and make the best of it in the end. Social impacts of outsourcing within the organization(s) have many dimensions and can only be compared with the impact of layouts.

As a matter of fact, according to for instance Goles & Chin (2002, 221) there has in recent years been an increased effort in IS research to study the Client-Vendor relationship. Integrating approaches from three different fields of science, namely organization theory, marketing, and IS, Goles & Chin end up summarizing that an **outsourcing relationship** is an ongoing linkage between an outsourcing Vendor and Client (ibid, 227). The researchers assume further that there is "a long-term orientation and a mutual recognition and understanding that the benefits attained by each firm are at least in part dependent on the other firm". The key element here is dependency.

The degree of cooperation between a Client and Vendor can evolve and there are different models from one-off outsourcing arrangements to long-term partnerships. A relationship can be described as a continuum or envisioned from the way teams have been composed. The legal form of relationship is of importance regarding work division within cooperation and teams. Teams may have sub teams and dependencies to other teams.

A good summary of possible cooperation models by Kobitzsch, Rombach and Feldmann (2001, 79) is depicted in Figure 5 where there are four different options for cooperation depending on the relationship type and the setup of the team. The context in Figure 5 is offshore outsourced software development where for instance Model 4 implies one team distributed across multiple sites of legally independent companies. In Model 3 and 4 legal implications can become major challenges and if the sites are distributed across different countries, language, time, and infrastructure are additional challenges. Coordination challenges have high impact on software development but existing historical relations will ease cooperation in Models 3 and 4.

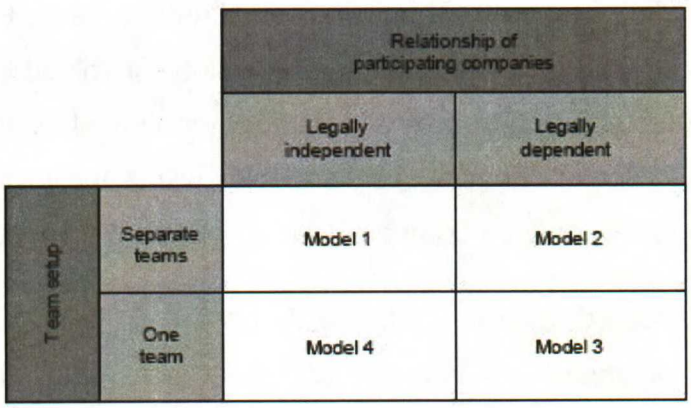

Figure 5. Cooperation Models (Kobitzsch & al 2001, 79)

To conclude, when there is exchange there is a relationship; there are two parties involved and thus they are dependent of each other as long as the dependency, for instance a contract, lasts. Asymmetry is inherent in the setup and it is difficult to avoid it. The other party has a different view on the relationship than the other one. Distance factors, foremost cultural, tend to strengthen differences further between parties. In a Client-Vendor relationship the power balance is delicate but mostly the Client is the one in power and thus makes the rules governing the relationship.

In IS research there exists no single commonly recognized theory of partnership, conclude Gurung & Prater (2006, 28) in their study and continue that this is probably due to the fact that each partnership agreement has its own practical arrangements. In this study we are looking at these very practical arrangements and, in particular, how coordination is being performed by the Client in a long-term continuous offshoring relationship.

3.1.2 Generic Relationship Factors

Despite each partnership having characteristics of its own, there are some generic relationship factors that can be studied. In their study Goles & Chin (2002) describe factors that have been identified from academic literature in the fields of marketing, organizational theory and IS outsourcing. The factors are those that have been found to play a significant role in relationships. There are two types of factors: "attributes" that signify inherent characteristics or properties contributing to functionality; and "processes" that signify the means by which the attributes are developed (Lambe &

al, 2000, 214). Goles & Chin (2002, 229) have adopted findings from earlier research to introduce a research model presented in Figure 6. The research model has not yet been much tested in academic research.

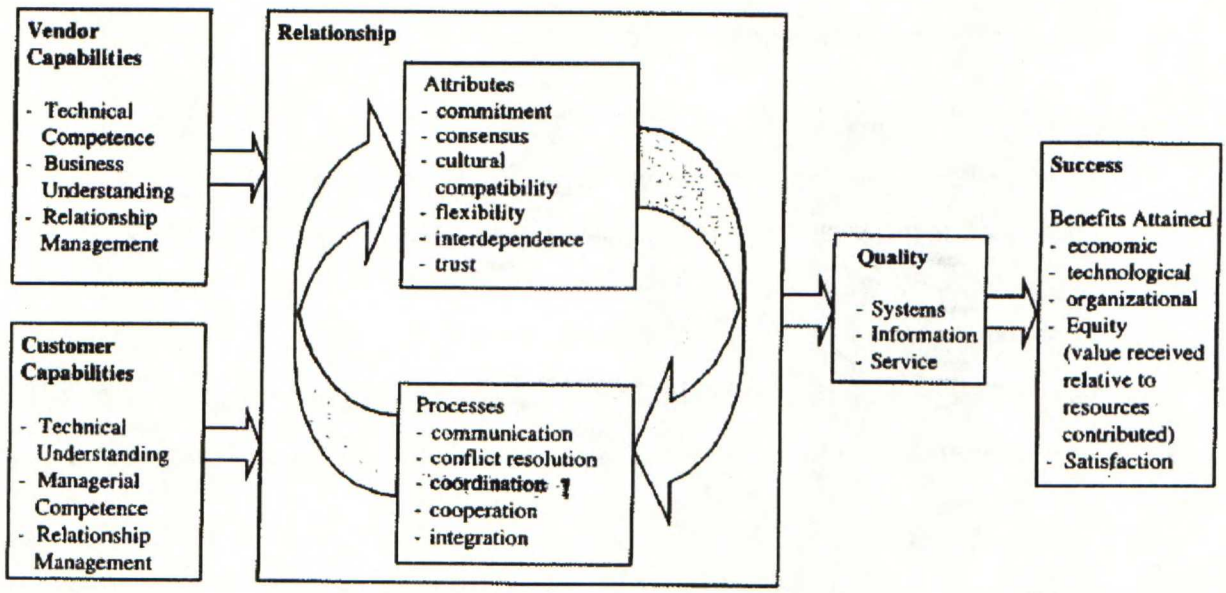

Figure 6. Research Model (Goles & Chin 2006, 225)

According to the research model in Figure 6 one of the process factors is **coordination**; one of the relationship attributes is **cultural compatibility**. **Trust** is also one of the relationship attributes. Motivations for cooperation on both sides are another prerequisite, and so is visibility, but these factors are not explicitly mentioned in the research model of Goles & Chin (2002). Both the Vendor and Client need to possess certain capabilities to achieve success in the cooperation, technically and otherwise. In fact visibility alone as such would require a certain competence level.

In the case study in Section 5 the process to be studied in a Client-Vendor relationship is coordination of software development when the work is being nearshore outsourced from a Russian Vendor. One of the factors impacting coordination is cultural compatibility.

3.1.3 Managing Risks

Without going into defining "risk" in general terms, it is common knowledge that risk is an inherent characteristic in any relationship, business or not business. Therefore it

deserves discussion in the context of nearshoring, too. Moreover, risk is closely related to two other phenomena also involved in relationships, namely "control" and "trust". "Control" differs from coordination but the two notions are interrelated and mechanisms are often similar (Sabherwal 2006, 190). We are interested in coordination and its prerequisites, one of them being trust.

Trust has been identified in IS research as a significant factor affecting management of outsourced IS development projects. (e.g., Sabherwal 1999) It is one of the four **dimensions of long term relationships or partnerships** that are relevant in the context of outsourcing. These are: communication, trust, cooperation and satisfaction. (Grover, Myun and Teng 1996, 111) The dimensions relate equally to organizations and individuals involved in the outsourced project. The strong presence of the four elements should forecast successful relationship,

In his study Sabherwal (1999, 82) defines four types of trust: calculus-based, knowledge-based, identification-based, and performance based. He has studied 18 outsourced information systems development projects, 13 of them from The Vendor's point of view, and could conclude that distrust hurts performance whereas trust improves performance (ibid, 81). Structural controls and trust help address unexpected problems in outsourced information systems development. The prevailing view of trust in the IS literature contends that trust has direct positive effects on cooperation and performance (Järvenpää & al 2004, 251). Effects are not necessarily direct and linear. Trust effects depend on the situation's structure. (ibid, 262).

In a long term relationship one of the greatest risks from a Client's perspective are the risks brought along with mutual dependency. There are two main sources of risk, namely people and the task. People may prefer acting in self-interest or they may leave the company, either the Vendor's or Client's. Tasks may be too complex and as a result coordination fails, because of distance factors or scarcity of time.

3.1.4 Managing Cross-Cultural Issues

The existing research on outsourcing relationships overlooks cultural differences between a Vendor and Client. It has been found that outsourcing success depends upon the quality of that relationship (Kern 1997, 52-53) but relational aspect of

contracts is often neglected in managing an IT outsourcing venture. In the Outsourcing Relationship Model of Kern (1997) cultural adaptation of organization and staff is regarded as a way to smooth the transition to a working relationship (ibid, 44-45). It is possible that the cultures of participating organizations become more tolerant of each other's culture and the importance of culture fades over time. This was the conclusion made by Lee & Kim (1999, 24) in their study on factors impacting the quality of partnership. The fading importance of culture over time can be interpreted so that organizations can learn from experience and gradually find ways to overcome differences.

When managing outsourcing across borders there are ways to facilitate a Client-Vendor relationship already in advance before starting the relationship. One of the means is to agree on the use of common systems for coordination and control, for instance how reporting is supposed to be made between parties. Common processes such as systems development methodologies and common compatible technologies in terms of computers, software systems, and telecommunications links can further smooth the relationship. (Krishna & al 2004, 65) Managerial skills are of great value in successful outsourcing.

Preparing in advance has, however, its limitations. Differences in culture lie deep in human behavior and influence attitudes towards hierarchy, power and business practices. It would require a major effort from both sides to try and develop a negotiated cultural perspective as authors Krishna & al (2004, 65) suggest based on their own studies on outsourcing software production across borders. This applies to other means, too, such as exchange of staff or using cultural bridging staff that are feasible mainly in the context of long-term relationships, i.e. in cross-border joint ventures or within a global company and its subsidiaries abroad.

3.2 Coordination of Nearshored IS Development

3.2.1 Coordination as a Management Process

Coordination is one of the management processes and an essential part of an outsourcing relationship. Projects that tend to be complex are to be managed in some manner and outsourcing presents an additional challenge to management.

However, despite recognized importance of coordination for the success of Information Systems Development (ISD) projects there has not been that much research on coordination management beyond organizational borders and at the same time beyond national borders.

Coordination theory refers to theories about how coordination can occur in diverse kinds of systems. Coordination is managing dependencies among activities. (Malone & Crowston 2003, 47, 50) If there is no interdependence there is nothing to coordinate. An example of a dependency and the equivalent coordination process is when resources are shared. There has to be some process to manage the situation, such as priorities, budgets, or the like.

Goles & Chin (2002, 235) add tasks to the definition of coordination: "managing interdependencies between entities to accomplish agreed-upon tasks". Goles & Chin continue by discussing the difference between "coordination" and "cooperation": coordination addresses the management of interdependent activities; cooperation reflects the participants' acknowledgement and agreement of what those activities are (ibid, 235).

Coordination and control are close to each other as a management process but still different. Control focuses on improving performance relative to a certain overall goal when the goals of individual stakeholders differ from those of the larger overall entity (Sabherwal 2003, 155). In an outsourcing relationship, the main tool for monitoring and control is the contract between the Client and Vendor. With the help of coordinating activities in the best possible manner, among other things, management can create consistencies that support the actual development work within the framework defined in a contract.

3.2.2 IS Development and Coordination

Information Systems Development (ISD) is a process that can be divided into different phases depending on the view to systems development work, its context complexity, and key activities. Traditionally starting from the 1970s software development has been seen as a waterfall advancing through the phases of requirements analysis, design, implementation, testing, integration, and

maintenance. Economic factors are driving software development projects into globally dispersed models like offshore outsourcing.

Iterative software engineering practices like agile development – or short-cycle-time development – has been taken into use by software developers worldwide in order to move software quickly into production. Iterative methods can also help to reduce risks. Software is developed in iterations that can last only one day; priorities are reevaluated between iterations, which should besides speed bring along enhanced quality. An iteration can be regarded as a mini-project with phases of its own but the volume of for instance testing in each iteration varies.

There are many agile approaches but most shares the following features: scarce documentation; face-to-face communication valued high; customers involved in the product definition; and working software regarded the main measure of progress. Iterative techniques enable projects to respond more easily to changing demands from customers or unforeseen challenges from competitors (Cusumano 2008, 15) already in the course of the work being done as if real time.

In any software development team its members need to coordinate their activities. When teams and/or team members are physically located in different countries there is an additional challenge for collaboration, communication and coordination. If the system to be designed is complex it often means less routines and more innovative work process. This can result in changing coordination practices from that of more routine projects.

Coordination is managing dependencies among activities as defined by Malone & Crowston (2003, 50) but there is another representative definition of coordination applicable in the context of software development in particular, namely that of Kraut & Streeter (1995). According to them, in software development "they [different people] must coordinate their work so that it gets done and fits together, so that it isn't done redundantly, and so that components of the work are handed off expeditiously" (ibid, 69). In a common project, there must be things shared by team members such as project target, requirements specification, or resource plan, in order to be able to accomplish the task. There are dedicated people to take care of

coordination; often it is the project manager in smaller projects; in bigger projects he or she can be assisted with others like coordinators.

3.2.3 IS Coordination Mechanisms

The case study in this thesis is based on the most central previous research in Information Systems (IS) so far in the field of coordination of outsourced IS development: Sabherwal's (2003) study "*The Evolution of Coordination in Outsourced Software Development Projects: a Comparison of the Client and the Vendor Perspectives*". Sabherwal was the first to study in depth and extent coordination mechanisms of internal or outsourced software development projects. His classification of coordination mechanisms is presented in Figure 7.

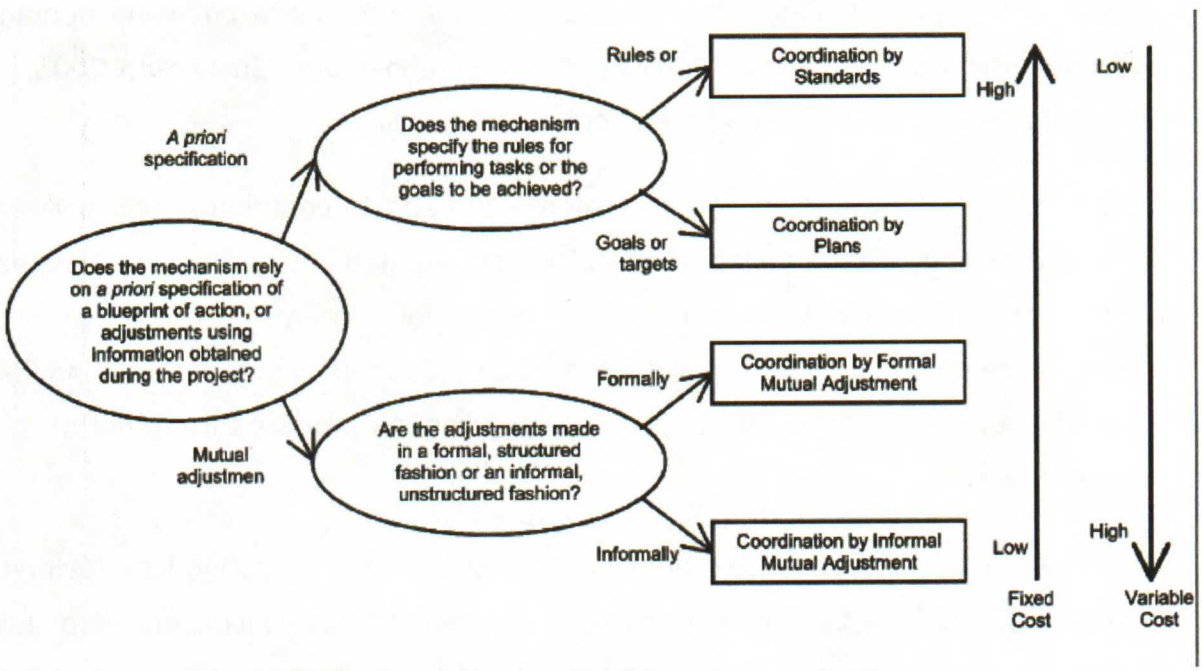

Figure 7. Classification of Coordination Mechanisms (Sabherwal 2003, 157)

Sabherwal's classification in the above Figure 7 incorporates findings in prior research. Sabherwal divides different coordination mechanisms into four broad categories: *standards, plans, formal mutual adjustment* and *informal mutual adjustment*. The first two categories are impersonal in nature and exist as blueprints guiding organizational behaviour, whereas the latter two categories, formal and

informal mutual adjustment, imply personal interaction of some sort. (Sabherwal, 2003)

From previous research Sabherwal has further identified coordination mechanisms that have actually been used in Information Systems Development (ISD) projects. When these are grouped according to Sabherwal's classification of coordination mechanisms, the result is a typology of 22 different types of coordination mechanisms as presented in Table 2.

Type of Coordination	Coordination Mechanisms
Coordination by standards:	Compatibility standards Data dictionaries Design rules Error tracking procedures Modification request procedures
Coordination by plans:	Delivery schedules Project milestones Requirements specifications Sign-offs Test plans
Coordination by formal mutual adjustment:	Code inspections Coordination committees Design review meetings Hierarchies Liaison roles Reporting requirements Status review meetings
Coordination by informal mutual adjustment:	Co-location Impromptu communications Informal meetings Joint development Transition teams

Table 2. Typology of Coordination Mechanisms (Sabherwal 2003, 158)

The coordination mechanisms listed in the above Table 2 have been detected in IS research 1976-1995. In the conclusions on his three case studies on the governance of remotely outsourced software development Sabherwal (2006) has found additional mechanisms on a more detailed level. The findings include a category called **Non-coordination**, described as self control and listing the following mechanisms (ibid, 197):

- Multiple reviewers
- Repetitive test cycle

- Rigorous internal reports
- Internal discussion groups

Already in his earlier study Sabherwal (2003) was able to surface patterns in the context of offshore information systems development projects. According to his studies there is an emergent model of evolution of coordination mechanisms to be detected as presented in Figure 8.

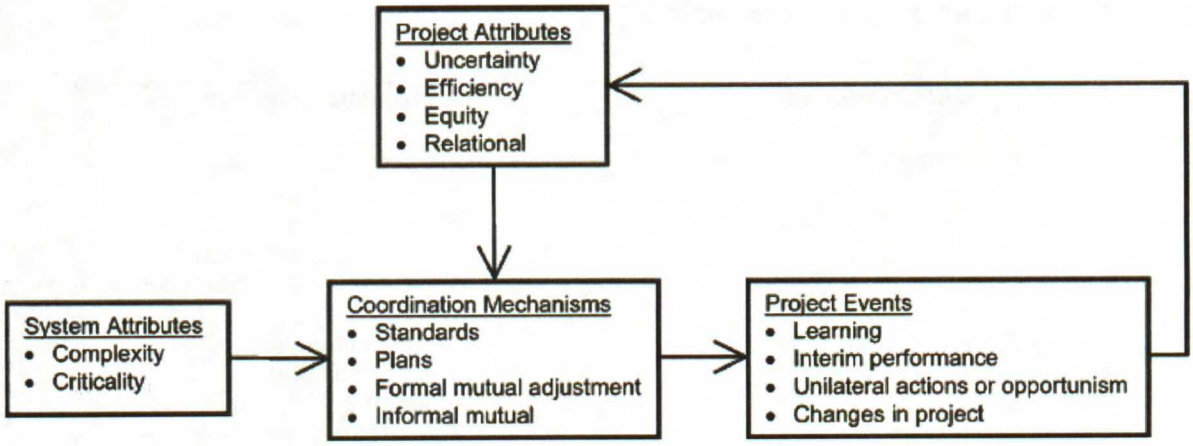

Figure 8. Emergent Model of Evolution of Coordination Mechanisms (Sabherwal 2003, 165)

The model in Figure 8 introduces the construct of project and system attributes to be discussed in the following Section 3.2.4 in more detail. Project events represent the incidents in the actual software development work to be discussed in the case study in the Section 5.

3.2.4 Issues Affecting Coordination Mechanisms

Project and System Attributes

Sabherwal (2003) has identified in his literature review factors that can affect coordination in outsourced software development, namely **project attributes** and **system attributes**. Of the four project attributes the attributes "efficiency", "equity", and "relational quality" emerge from research on interorganizational relationships, whereas the fourth project attribute, "uncertainty", is based on literature on internal coordination of organizations. The system attributes affecting coordination are: "complexity" and "criticality". Table 3 summarizes attributes' implications for outsourced information systems development.

Project Attributes	Implications for outsourced ISD
Uncertainty (i.e., lack of information)	Horizontal channels and group meetings may increasingly replace impersonal coordination. More interactive coordination mechanisms become more appropriate under high uncertainty.
Efficiency	Reflects the benefits that parties obtain from the outsourcing arrangements, in terms of timely and within-budget delivery of high-quality software.
Equity	Concerns the fairness in the dealings between the two parties. Would require reciprocity, but not necessarily equity. Reduced by the perceived opportunistic actions by the Client or the Vendor, i.e. perceptions that the other party is not adequately performing its expected role.
Relational quality	Depends on personal bonds between parties, their trust in each other, their reputations for fair dealing, and their previous contributions to the relationship. Influences the evolution of interorganizational relationships. Enhanced by prior interactions between the Client and the Vendor. Enhanced by similarity of language and culture.
System Attributes	**Implications for outsourced ISD**
Complexity	If a system is complex assume more intensive coordination.
Criticality	If a system is critical assume more intensive coordination.

Table 3. Project and System Attributes Affecting Coordination Mechanisms (Sabherwal 2003, 157-159; 174)

In Sabherwal's own case study (2003) his findings were that of the four project attributes, the two attributes "uncertainty" and "relational quality" most commonly influenced coordination mechanisms (Sabherwal 2003, 175), according to both the Client and Vendor. Furthermore, both the Client and Vendor perceived that these two factors were influenced by circumstances at the start of the project such as prior knowledge and a long-term relationship between the two sides. The system attributes "complexity" and "criticality" both enhanced coordination in some of his cases (ibid, 174).

Nurmi, Hallikainen and Rossi (2005) have used Sabherwal's framework as a basis for their case study on a joint IS development project in a multi-Vendor and multi-customer context. Their study concerns a consortium formed by Finnish universities that outsourced the development of a commonly used systems to several Vendors, what coordination mechanisms had been used and what issues had affected coordination. The study was stretched over a full project life cycle: negotiation, requirements analysis, detailed design, coding, first implementations, and maintenance & expansion.

The most relevant findings in the study by Nurmi, Hallikainen and Rossi (2005) on the case of an outsourced multi-Client and multi-Vendor project were:

- Compromising was found to be a characteristic feature in multi-Client environment;
- Coordination was very informal at the beginning but with increased complexity more formal coordination mechanisms were used;
- With the increased functionality of the developed system dependency on stakeholders was reduced and coordination started to resemble control;
- With the increased functionality of the developed system stakeholders' goals began to diversify and control – instead of coordination – was required in order to be able to continue co-operation.

The project in question was highly complex and this was further enhanced by multiple Clients and Vendors. Sabherwal and Choudbury (2006) studied altogether 18 remotely outsourced software development projects to learn from both the Client's and the Vendor's perspective about governance mechanisms, i.e. both coordination and control mechanisms. Four of the cases were viewed from the Client's perspective only. Sixteen of the cases were offshored outsourcing, the location of the Clients varying from the U.S. to Thailand. The location of the 16 Vendors was in India or in two cases, Columbia.

When Sabherwal & Choudbury (2006) compare the results from the Client and Vendor perspective, the overall preferred mechanisms for Clients was either formal or informal but always interpersonal. Clients with less experience from remote outsourcing showed more interest in control-type behaviour in the manner of their internal project procedures.

Cultural Compatibility

In a Client-Vendor relationship **cultural compatibility** is one of the relationship attributes according to the research model by Goles & Chin (2002). Cultural compatibility is the extent to which the parties can coexist with each other's beliefs about what values, behaviours, goals, and policies are important or unimportant, appropriate or inappropriate, and right or wrong as originally defined by Morgan & Hunt (1994, 6) and as quoted and interpreted by Goles & Chin (2002, 232). Basically there are two types of cultural aspects present: the impact of organizational cultures and that of national cultures.

In the implications of project attributes in Table 3 the construct of culture is present when we speak about **relational quality** which is enhanced in outsourced IS projects, according to the findings of Sabherwal (2003), by similarity of language and culture. The concept "relational quality" equals to the situation where there is lack of information.

Thinking of similarities and differences between cultures is one way of approaching the impact of culture; another is through the concept of distance.

In the context of nearshoring Offshore Information Systems Development (OISD) projects, there are – besides generic factors affecting coordination – also distance factors; physical, cultural or political, that need attention in the context where the Client and Vendor are not based in the same country. (Gabrielsson & al 2007, 7-13) These factors have already been introduced in the Section 2.

There are distance factors that are more Russian specific than others. In studies on leadership prototypes countries are clustered based on differences in leadership concepts across countries. Russia has been included only in few major studies. In the European-wide study of 22 countries by Brodbeck and 44 other researchers from respective countries (2000, 12) Russia came to be clustered in the group of South/East European countries but, notably, formed a sub cluster of its own in the manner of e.g. Georgia. The authors found a set of across-region dimensions; "Interpersonal directness and proximity", "Autonomy", and "Modesty". In the two first dimensions, there was a statistically significant difference between Finland and Russia (ibid, 18).

We are here, however, interested more on everyday managerial activities and self-reported differences between Russia and Finland. Mashkina, Kosonen and Heliste (2005) have used governance approach to study the cultural gap in business norms in Finnish-Russian operations. The data was collected by questionnaires and semi-structured interviews with Russian and Finnish managers, participants of a management training programme. Finnish and Russian respondents have pointed out differences and similarities related to inter-company relations and labour relations that have been summarized into Table 4.

Inter-company relations	Russians	Finns	Opinions shared by both Russian and Finnish managers
Personal networking	Role of personal networking is reducing; it is easier to separate friendship from commercial ties.		Good personal connections essential but not necessarily the prerequisite for starting a business relationship
Hierarchical organization structure			Russian organizations more hierarchical than Finnish ones. In Russia, top-level managers conduct negotiations, mid-level managers are mainly operative managers. In Finland, mid-level managers usually have the authority to also close agreements.
Role of contracts & agreements		Russians do not respect contracts the same way as Finns do.	Personal contacts at least as important as contracts.
Labour relations			
Hierarchy, delegation of authority		Authoritarian management style causes problems with trust and exercise of power.	Decision making power is concentrated on top managers; managers are reluctant to delegate authority.
Workers reluctance to take responsibility			Workers still lack initiative and avoid taking responsibility, which is a legacy from the socialist times.

Table 4. Summary of Differences and Similarities in Business Norms Pointed out by Finnish and Russian Respondents (extract from a table by Mashkina & al 2005, 278)

Mashkina, Kosonen and Heliste (2005) have found out that most opinions shared by Russian and Finnish managers are related to partner relations. It seems trust and recommendations are important when working with partners for both Finns and Russians. Yet, there are differences. Russians value personal agreements and promises over formal written agreements. There are also divergent views on how carefully agreements should generally be followed. Russians still like to use personal relations for securing business particularly in new endeavors and for avoiding problems caused by organized crime or bureaucracy, although the role of personal networking appears to be diminishing in Russia. The respondents in the study, Finnish and Russian managers, suggested that from the perspective of global business, it is maybe Russia that is the "normal" country and the Finnish "purity" is exceptional with its business norms. (ibid, 260-272).

In a later study on Russian dynamic business environment Karhunen et al (2008, 203-207) interviewed Finnish enterprises and their Russian partners. According to the interviewees Russian management style and work culture still is fairly hierarchical and authoritarian. Russian employees are often reluctant to work independently and make decisions on their own. Finns have to tell Russians what to do and employees seem to be used to receive orders. As one of the most important problems the interviewees mentioned Russian's inexperience in team working. There have been cases where team style management has failed badly with Russians. Researchers wish to underline though that there is a lot of variation depending on industry and region. There are also plenty of good cases to report. However, it seems that the differences between Finland and Russia tend to increase the need for coordination activities from the Finnish side.

Because of the dynamic nature of culture as such, it is not that easy to try and extract exact contradictions between any cultures. It is hard to define what is causing a conflict or contradiction in detail. People from different cultures may coexist quite easily despite differences but in other cases the differences seem to cause major difficulties, concludes Walsham (2003) in his study on cross-cultural software production in a Jamaican insurance company. A Jamaican member of software development team viewed the Indian approach to coordination as representing an adult-child mentality, to take an example from Walsham's case study (ibid, 365).

A number of social scientists from Russia and Finland have cooperated during the past few years already and one result of the cooperation is a comparative research of 7 countries, including Russia and Finland. Cultural aspects are the topic of most reports in the collection for a book (We and they 2007). The data collected by Magun (ibid, 134) regarding work values by the labour force of the eight countries is presented in Table 5.

Values	Russia N=1571	Finland N=610
Good pay	92	71
A job that is interesting	71	80
A job that meets one's abilities	56	56
Good hours	42	52
Generous holidays	30	24
Good job security	73	69
A job respected by people in general	46	30
An opportunity to use initiative	32	53
A job in which you feel you can achieve something	40	57
A responsible job	27	41
Not too much pressure	17	32

Table 5. Work Values Chosen by the Labour Force of the Eight Countries Studied (1999-2000, percentage of those responded to the question; Magun 2007, 118)

Another data from the same, fairly extensive study (Magun 2007, 121) describes the subjective importance of various spheres of life to the labour force of Russia and Finland. Family is of equal importance for both nationalities but work is more important to Finns than to Russians while friends and recreation are more important to Russians than Finns.

Magun (ibid, 135) concludes his analysis stating that Finns value personal activity and initiative, personal achievement, personal responsibility and interesting work far more than Russians. Finns do not mind even extraordinary efforts when it is about the content of their work but outside that Finns prefer good working hours and pressure-free work climate. Russians have an opposite view, according to Magun (ibid, 135): Russians are not willing to work hard but accept inconvenient working hours or working under pressure. They like good pay and appreciate the respect of other people as to their job.

It should be noted that there are considerable differences in culture within Russian Federation. There are the two big cities, St Petersburg and Moscow, that both have distinct cultural features of their own. In addition there are a number of smaller but still big cities each having some million inhabitants scattered around in the provinces, some of them wealthy. Thirdly, there are a number of provinces, some small but some large enough to qualify for a country larger than any country in Central Europe.

In the manner of IS research related to cross-cultural teams and management also the Russian research seems to emphasize the dynamic nature of cultural factors.

Russia is an economy in transition judged by any measures and thus facing considerable changes for many years to come. Magun's notion (2007, 158) in his study on work values reflects the situation in Russia: work values along with motivation for work may change even over relatively short periods of time as a result of reforms taking place in the country.

In their recent conceptual paper Gurung & Prater (2006) address the effect of cultural differences on IT outsourcing and virtual teams' performance. Their framework of offshore outsourcing success, presented in Figure 9, has been designed for assessing offshore outsourcing success and it introduces a new concept, that of **psychic distance**. In the framework the researches have attempted to integrate three aspects of the information technology industry, namely outsourcing, global virtual teams, and international culture. The researchers have found in prior IS research cultural factors taken into account only when the theoretical perspective has been partnership, i.e. in the work of Lee and Kim (1999).

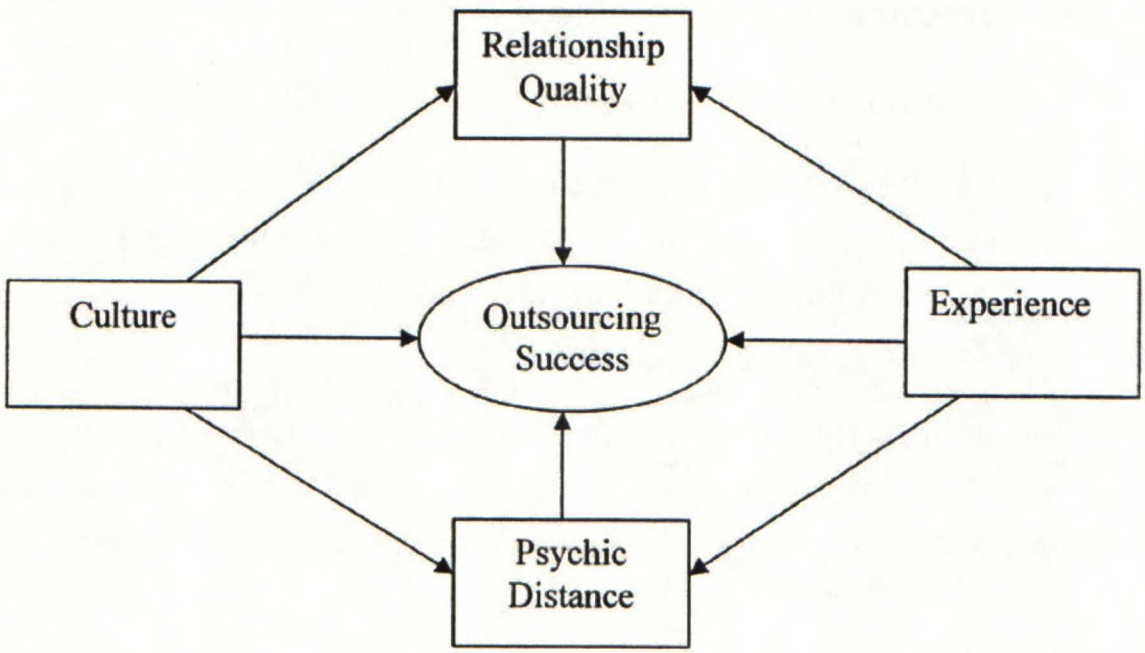

Figure 9. A Framework of Offshore Outsourcing Success (Gurung & Prater 2006, 35)

The relationship quality is linked to outsourcing success together besides culture, also with experience that has accumulated for participating companies that thus have

been able to develop methods to improve contractual relationships, and psychic distance. Psychic distance refers to the degree of similarity of difference in terms of cultural factors; it is a concept that has been much used in the international business literature. Psyche is about the mind while distance implies a degree of difference (Gurung & Prater 2006, 33). It is to be noted here that being different in a work environment can also be regarded as a source of energy and innovation. Secondly, software developers have many things in common because of their profession and education behind it, regardless their nationality, which helps overcome differences originating from cultures.

Cultural factors seem to evade exact notions and definitions. One reason for that is that in the end culture is actually about a degree of how differences or similarities are perceived by each individual. However, the framework of Gurung & Prater (2006) should support us in our effort to contribute to our knowledge of understanding better the impact of cultural differences in the context of nearshoring.

3.3 Conclusions for Empirical Research

3.3.1 Summary of Literature Review

The purpose of the Sections 2 and 3 has been to create a conceptual background for the case study in general as well as to find major themes for interviews to be conducted with the Client's employees who have been involved in the software development projects nearshored to the Russian Vendor.

The main sources used in the Sections 2 and 3 for defining concepts as they are understood and used in this thesis are summarized in Table 6. Page numbers in brackets refer to relevant pages in the sources mentioned in the first column.

Source	Offshoring Nearshoring	Distance	IS Outsourcing	Outsourcing Relationship	Coordination	Culture
Sabherwal & Choudbury 2006				Role of trust in OISD projects (188)	Coordination vs control (189-191)	
Sabherwal 2003					Classification of coordination mechanisms (157) Typology of coordination mechanisms (158) Emergent model of evolution of coordination mechanisms (165) Project and system attributes (157-159, 174)	Similarity of language and culture enhances one of the four project attributes, relational quality (157-159, 174)
Ali-Jyrkkö & Jain 2005	Outsourcing vs Offshoring (1)				Division of work (10)	
Carmel & Abbott 2007	Definition of nearshoring (44)	The importance of distance (42)				
Goles & Chin 2002			Definition of (226)	Definition of (227) Research model for linking the Client's and Vendor's capabilities to outsourcing relationship and its success (225). Definition of cultural compatibility (after Morgan & Hunt 1994, 6)	Coordination vs cooperation (235)	As one of the relationship attributes (225)
Choudbury & Sabherwal 2003				Definition of the Client and Vendor (292)		
Gabrielsson & Eronen & Pietala 2007		Business distance: physical, cultural, political (7-13)				
Gurung & Prater 2006	Framework of offshore outsourcing success (35)	Definition of psychic distance (35)		Dimensions of long term relationships (36).		Definition of (37), after Hill (1999, 67).
Malone & Crowston 2003					Definition of (50)	
Kyöstilä & Cardwell 2005	Drivers and inhibitors (13)			Cooperation models (11)		

Table 6. Literature Overview on Key Concepts

3.3.2 Themes for Semi-Structured Interviews with the Client

Major themes for interviews to be conducted in the case study are based on earlier literature as reviewed in the Sections 2 and 3. The key concepts have been presented as an overview in Table 6 in the previous section.

In a long-term Client-Vendor relationship, there are probably some established forms of collaboration, communication and coordination already in existence. Practices have been conformed to serve best this particular relationship in order to reach contractual targets. Contracts that dictate the frames for the relationship and people involved in the relationship may have changed in the course of the years. Some practices continue the same as earlier, some change. There has been some learning by both parties and experience has been accumulating.

In the case of the Client nearshoring software development to a Russian Vendor there are some coordination mechanisms that have been defined in the agreement between the Client and Vendor as well as in the Client's documentation regarding process and project management. The Client's documentation is the one that is followed in all the Client's software development activities. Some coordination mechanisms can be regarded as tools for Project Managers, to be used according to his or her judgement of situation at hand. There may be variation depending on the complexity or criticality of the project in question, for instance. Or, to take another example of possible factors affecting coordination mechanisms, there may be uncertainty because of cultural differences that has triggered the use of additional coordination mechanisms possibly not used earlier.

Some coordination mechanisms occur more frequently than others. There might be variation in the use of coordination mechanisms also in the sense at which stage of each project some mechanisms are used and some rather avoided. At times more formal type of mechanisms is preferred, occasionally face-to-face communication is perhaps more favored. For the Client, the ultimate target is the success of the project in question and coordination is supposed to contribute to that success. The Client's staff involved in

actual projects may have their views on the significance of some coordination mechanisms in the context of nearshoring to Russia.

4 EMPIRICAL RESEARCH

In the context of nearshore software outsourcing the Client's challenge is how to manage the work that is done off-site outside the Client's premises and country of location. In addition to the challenge of coordinating software development work cross-site, there is a certain amount of coordination needed on both sides, which in turn sets requirements on mutual visibility. In short-cycle-time development interactive daily face-to-face communication forms the basis for successful project work.

4.1 Research Objectives

In this thesis, the focus resides on coordination of nearshored software development projects from a Client's perspective. Coordination mechanisms used by the Client in managing nearshored software development projects are investigated in the case study. Secondly, the possible evolution of project coordination mechanisms in the long term relationship of the case company with its Russian partner is evaluated.

The research questions are as follows:

- What coordination mechanisms are used by the Client when outsourcing software development work to the Russian Vendor?
- How coordination evolves over time and what issues affect the coordination mechanisms used?

Since the early 1990s the Client has contracted software development from a Russian Vendor whose employees have been team members in sub teams belonging to the Client's project teams. There have been numerous projects during the years passed and even some job rotation between the two companies. Most of the Vendor's employees, also on the Client's side, have been participating in the cross-site projects from the beginning. Criteria for selection of the staff to be interviewed for this study based mainly on the availability of the staff involved in the Client-Vendor cooperation.

Both the Client and Vendor remain anonymous. The Vendor represents one of the oldest companies offering offshore software development in St. Petersburg, the hub of Russian engineering with long traditions.

4.2 Selection of the Research Method

In this case study similar research methods have been used as in the research on coordination of outsourced software development projects by Sabherwal (2003) and Nurmi & Hallikainen & Rossi (2005) that are both serving as research models here. Complexity of software development is similar. Yet, there are differences. One is that this case deals with one Client only whose coordination practices with one Vendor have been investigated. Secondly, the single Client-Vendor relationship has in this case been continuous and long-term by nature. Thirdly, the context of this case is offshore outsourcing to a nearby country and can thus be called nearshoring. Finally, team members of a project developing together software are located on-site and off-site, representing thus distributed multi-site type of agile software development work.

In order to identify the different coordination mechanisms used by the Client and to follow the development of coordination in the course of cooperation, a qualitative approach using a case study type called **detailed case study** as defined by Yin (2003) has been considered the most appropriate in this context. The Client has been a pioneer in the adoption of agile methodology together with the Vendor and the case should therefore enhance our understanding of how coordination is performed in an agile project environment.

4.3 Data Collection

The qualitative research has approached the Client's coordination practices from two perspectives: via documentation provided by the Client and through interviewing the Client's staff.

In the second phase of the research, semi-structured interviews with the Client's key staff members engaged in IS development projects nearshored to Russia were

conducted in April and May 2008. A total of seven employees were interviewed face-to-face. In addition one employee that had long been involved in the Client-Vendor cooperation but recently left the Client's organization to join another company replied in writing on the theme of cultural differences and their impact on coordination. The persons interviewed were chosen to be those that had been involved in the projects and, more importantly, have had and/or are having the possibility to influence the way coordination is actually being done in the projects. This criterion restricted the number of interviewees but simultaneously ensured that all interviewees knew the meaning and contents of coordination, were aware of the choice available in mechanisms and in their roles were able to, if needed, to change or modify them in the course of the projects.

All nearshored software development work in this study represents project-based continuous outsourcing.

Interviews were semi-structured leaving room for free discussion in the frame of themes. Discussion themes had been constructed based on the theory part of this thesis and thus on prior IS research but interviewees were encouraged to develop their own views. Discussion themes were divided into two main groups: those related to coordination and its evolvement with time in joint projects in general and on the other hand those related directly to everyday development work.

Before the start of each interview the theoretical background for coordination mechanisms and prior research as discussed in the Section 3 was introduced in brief to each interviewee. Description of what is meant by coordination and how it relates to the concept of control together with Sabherwal's (2003) list of common coordination methods, typology of coordination mechanisms (ibid.) and emergent model of evolution of coordination mechanisms (ibid.) were shown to interviewees. The purpose of such an introduction was to ensure that the topic of the thesis, coordination mechanisms used in the management of nearshored software development, would be understood in a similar manner by the interviewer and the interviewee.

The outline used in interviews is included as Appendix 1.

The interviewing technique followed the iterative approach of research as proposed by Eisenhardt (1989). In this case it has meant for instance that interviewees were asked to propose candidates for the following interviews, which they did, too. The emphasis on various themes changed in the course of interviews, which resulted in interviewing two persons twice regarding certain themes to correct the misbalance. The final group of interviewees came to include two Vendor's long time employees that have also been the Client's employees at some point in their career. One of the current the Client's employees interviewed has once been employed by the Vendor.

4.4 Data Analysis

The objective of the data analysis has been to understand what coordination mechanisms are used in the nearshored software development projects; how mechanisms evolve in the course of the time; which type of project events cause the change; and when feasible, to find reasons for making changes in coordination mechanisms.

In the research approach used by Nurmi & al (2005) coordination mechanisms emerging from interviews were identified and analyzed according to the respective activity in information systems development. Mechanisms were mapped according to project stages. However, in this case where agile development methods are followed by the case company and teams are self organizing the analysis remains on the project team level. Consequently, coordination within a project team and its sub teams can be considered to be the unit for analysis in this research. Individual projects were generally not identified in discussions except one that is described below and analysed in Section 5.3.6. The perspective has been the Client's. Two of the interviewees are officially the Vendor's employees but their viewpoints represent more those of the Client's because of their managerial roles and the nature of this particular the Client-Vendor relationship.

The coordination practices detected from the Client's documentation in the first phase of the case study research were analyzed and compared to coordination practices found when analyzing conducted interviews. Prints from retrospective meetings of one, still ongoing joint Client-Vendor project were received for analysis from interviewee number

three (P3) and bring as such an interesting insight into the everyday project life. Unfortunately, such prints were not available for research purposes from any other projects or from any project throughout its life-cycle.

Interviews amounted in total to over one hundred transcript pages. The summary document made from each interview transcript includes information on the purpose of the study with a summary from each interviewee's own interview. The summary documents together with complete interview transcripts were delivered to each interviewee for review and comments. The comments received from interviewees have been then taken into account in the analysis.

5 CASE STUDY ON THE CLIENT

In this Section the coordination practices of the Client are investigated in two phases, first based on documentation provided by the Client and then by analyzing interviews conducted with the Client's key staff involved in information systems development nearshored to St. Petersburg in North-West Russia.

To give the necessary background for analysis, the Client's business is described in brief based on documentation available from public sources. The Client's current coordination practices are presented as a summary based on documentation received from the Client. The contract situation between the Client and Vendor is briefly discussed.

The interpretive analysis of interviews starts from Section 5.3. Research questions are addressed within the frame of coordination mechanisms detected in prior research and the ones officially used by the Client. In addition, issues affecting the Client's coordination mechanisms, i.e. project and system attributes as well as cultural factors, are considered.

For company confidentiality reasons both the Client and Vendor remain anonymous.

5.1 Overview on the Client's Business

The Client's business is to produce specialized software, solutions and services for communication tools such as PCs, laptops, or smart phones as well as for network servers used by consumers or enterprises. It is a highly dynamic business area implying that demands set for products change continuously and rapidly while simultaneously product quality has to be kept constant.

Product development has had to accommodate accordingly, which means tight schedules and demanding requirements for information systems development projects that are highly complex and sophisticated. Projects have become shorter but their scope larger over time. The Client has a proven track record of reacting faster than competitors in developing new software for customers' time-critical needs. Yet, the Client is equally well-known as a reliable software producer and the quality of the Client's products and solutions have many times been awarded internationally.

The Client's customers are consumers, small and medium sized businesses, or enterprises. Consumers have been included as a segment in the Client's business at a later phase than other segments. The products offered by the Client are various but as a rule include some type of service, for instance automated updates at intervals defined by the Client. The Client has a worldwide network of distributors and certified resellers, offering its software, solutions and services to customers around the globe. Products are localized in numerous languages. Consumer products are also available as OEM[3] versions. The Client provides in cooperation with its partners technical product training, material and information for its distributors, resellers, and customers.

The Client's position in the ecosystem can be defined to be consisting of two parts: product-based business and software as a service –business. In product-based business the number of end-users represent as such a business target for the Client but end-users are also essential for future product development for instance via participation

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[3] OEM stands for Original Equipment Manufacturing which in the context of the thesis used as an adjective describes software licensed only for a particular system and purchased as a part of a system or hardware. Some OEM programs have limited functionality and can be cheaper than full versions.

in beta testing of consumer releases. As for offering software as a service, gaining new service partners and enhancing the existing ones is of vital importance for the Client's future success.

5.2 Findings from the Client's Documentation

The common practices in the Client's product life cycle management are described in an overview in the Client's internal guidelines for product development. The documentation depicts processes and practices for product and project management as well as interfaces to other processes. The guidelines are uniform and applied throughout the Client's organization including offices and partners abroad. There are no country-specific guidelines in use. In the rare instance when deviation from the said guidelines is approved it is primarily for improving the process in general, not just for a single case in some specific context.

Few years ago the Client started to adopt agile methods with growing pace after a successful, innovative and fairly large project that lasted half a year and, despite the challenging use of new technology, met its budget and schedule. Personnel began to be in favor of the adoption of agile methods that led to company-wide training and investments. Today builds are made iteratively weekly or occasionally daily if needed and prototypes or beta versions are given out even without testing for immediate feedback by chosen groups of users.

Besides flexibility, efficiency has been improved by shortening the time needed for development, which does not necessarily imply that the scope would be smaller. Before adopting agile methods, the Product Manager used to make a final requirements list that could no more be changed in the course of the development process. Now the owner of the business case, generally a Product Manager, belongs to the project and is taking part in the development process.

Products share a generic platform from which various individual products, product packages or concepts are being conceived. Development process advances through phases such as screening, development, validation, releasing and general availability.

The process is cross functional. Software is just one part of the product; the complete solution as sold to customers is considered by the Client to include, among other things, besides software also documentation, media, packaging, related web content and services such as for instance support services. Respectively, a product development project that typically aims to produce a major version of an existing or new product or a minor version continues even after release for manufacturing until the complete product is considered available for customers.

The Client's project roadmap contains product release and phase out timetable and resource levels for a rolling 12 month period ahead. It can include also research projects that produce some product functionality to be integrated into a product or service. Besides research projects, there may be so-called early feature development going on triggered either by some customer feedback or by initiative from the Client's own staff. If possible, end-customers are one way or other involved in product development, even in internal projects. Beta customers are part of normal procedure.

Projects have a steering group that makes decisions within project mandate. The Project Manager – together with the Product Manager in the case of a project aiming at a product – lists the priorities for project tasks. In large projects there may be subprojects but generally this is avoided by splitting too large projects into smaller ones if it is feasible. The Project Manager monitors the progress of the project mainly against milestones that are documented, with possible deviations, in the project's weekly report. The Project Manager is also responsible for integrating the work from other functions into the product. Team meetings are held regularly and project iterations are reviewed in meetings that are working meetings by nature and therefore do not require extensive advance preparation.

Within each iteration the Project Manager ensures that criteria for considering a project phase completed are met. During the first iteration a list is prepared of what the project at hand should be able to deliver. However, updates are possible. The delivery list may include items outside research and development, too. Checklists are kept for all major project functions.

The Client has since the early 1990s made outsourcing contracts with a Russian Vendor on developing software. The very first contracts were made on subcomponents or otherwise separate parts of software with low dependency on other software development work made by the Client. By the end of 1990s the projects began to grow also with respect to their scope. Today responsibilities in the joint projects have been shared between the Client and Vendor so that there may be projects when only the role of the Product Owner or its equivalent is still always occupied by some Client's employee.

The latest agreement regulating cooperation between the Client and Vendor, in force since January 2007 can be righteously characterized as a frame agreement. This particular agreement brought along greater mutual visibility into the relationship and thus facilitated the everyday development work for the joint development teams. The Vendor uses the same practices in program organization as the Client. Regarding coordinating practices in projects the only reference to be found in the current agreement between the Client and Vendor is the following sentence:

> All project work is to be done according to the Client's product development process and its suitable sub-processes.

Consequently also the project work in the joint development teams having employees both from the Client and Vendor has been implemented following agile methods for 3-4 years now. Scrum, one of the short-cycle-time software development methods, is being used in all the Client's software development projects including software maintenance teams. Please refer to Appendix 2 for an overview on the Scrum iterative lifecycle as pictured by Larman (2004). Teams work independently in groups of approximately ten people. A team can have sub teams. One of the team members takes up the role of a Scrum Master acting as a coordinator and facilitator for other team members. Work is done in increments that are possible to get completed by the end of each sprint.

5.3 Findings on the Client's Coordination Practices

5.3.1 About the Empirical Research Analysis

Each interview is briefly summarized in the following Section 5.3.2.

The main coordination mechanisms used by the Client as based on interview analysis are consolidated into Table 7 in Section 5.3.3.

The evolution of coordination during the past 3-4 years regarding two main events, move to agility and the new frame agreement 1.5 years ago is discussed in Section 5.3.4.

For an overview on the evolution of coordination the findings from interviews related to cultural factors impacting coordination in the course of time are consolidated in Table 8 in Section 5.3.5 which also discusses the impact of project and system attributes on coordination.

Section 5.3.6 describes how coordination is actually agreed upon between Client-Vendor software development teams. Examples from coordination practices and their evolution in one, still ongoing, project are presented to support findings from interviews.

5.3.2 The Client's Coordination Practices

Each interview is briefly summarized. P with a number denotes the person that has been interviewed. The number tells the order in which the interviews were made. There was some iteration so that for instance the interviewee P7 was proposed by the interviewee P5. The style in the interview summaries has been conformed to the style interviewees chose to use for expressing their views.

P1: Development Manager/Project Manager

The interviewee P1, the only female among interviewees, had joined The Client's organization autumn 2006 to work under P8 in Client-Vendor projects till the end of the year 2007. She does not regard herself as a manager but rather a facilitator. In her time

the members of the same project team were located both in Helsinki and in St. Petersburg. Most developer competence came from the Vendor's side and quality engineers from the Client's side but according to P1 that was because of the availability of suitable competence on both sides at that time happened to be so. In general P1 has high regard of the Vendor's employees' competence. Also the Vendor's employees' motivation and commitment to their work has been good. Schedules and budgets were kept and all projects could be considered having been successful as a whole.

Agile methods were already followed. Actual work was coordinated so that development took place in small increments and handoffs from developer to tester, for instance, went daily and in small pieces. However, because team members were not co-located the increments tended to grow bigger than originally planned in the monthly Sprint meetings. Daily fifteen minutes' meetings by phone – a Scrum coordination method that according to P1 had worked out fine in other projects – turned out to be of little help because of language problems on the Vendor's side. Halfway in the project, early 2007, it was jointly decided by the team to nominate another Scrum Master on the Vendor's side. The Russian Scrum Master held daily meetings in Russian in St. Petersburg and then transmitted the results in English by phone to daily meetings held in Finland. Already before the nomination of the local Russian Scrum Master there were technical problems with telephone lines, voice quality and desktop sharing software. One solution was the move to Skype that was much better in voice quality compared with teleconferencing.

According to P1 there is variation within the Client's organization how general guidelines regarding coordination are followed by each project manager. For instance P1 has used an additional weekly meeting that according to her is probably not used in all other projects or programs. The reason for a weekly meeting was to get an overview of the project; where the work is leading to. Weekly meetings are attended besides by team members also stakeholders, product owner and the person responsible for customer support.

P1 would recommend co-location as the best improvement regarding coordination. In her time sprint meetings were for the most part held together with the whole team either in Helsinki or St. Petersburg. This was made to ensure all team members' commitment

and motivation for the next sprint and its targets. Documentation is done by each team member according to his or her judgment, the sprint product log and the enterprise wikipedia being the main places for keeping records.

Cultural differences impacted coordination from P1's perspective so that if something went wrong the first thing on the Vendor's side tended to start searching for the one that is guilty. P1 admits that this is not unusual even in Finland but not that frequent though. P1 has had to interfere and direct employees' attention towards finding a solution. A side effect is that Russian team members were not that easily bringing new ideas forth in the team. Another thing was that when new things came up and should have been implemented the Russian team members seemed to hesitate and hoped to get acceptance and orders from some manager first before action.

P2: Development Manager

The interviewee P2 has been in this position with the Client since 2004. Earlier he has worked for the Vendor in St. Petersburg. His nationality is Russian. During the past three years or so his work has been related to the same product although since 2004 his team has been moved from one program to another twice. According to P2 the themes chosen for interview were for the most part not relevant regarding this particular Client-Vendor relationship. There are no 'they'; employees from the Vendor are equal members in the project team. There are no phases in the project; software is developed using agile process and scrum methodology as described for instance by Larman (2004, see Appendix 2). P2 repeatedly referred to Fowler (2007). The relationship between the Client and the Vendor is primarily built on trust. The main interest is on competence. Organizational cultures are already similar in many ways and people stay long in their jobs, which is exceptional in St. Petersburg's business environment.

Coordination has changed with the adoption of agile methods. The adoption was carried out in a similar manner throughout the Client's organization including the Vendor's. To P2's understanding there are no different strategies for project management regarding outsourcing. Move to agility affected cooperation with the Vendor the same way it affected internal teams.

Before adopting agile, there were a lot of written documents about every project: a vision document, a requirements document, test plans etc. At the start of the transition, the Vendor first tried to continue working the way things were done before, for instance asked for the specification of what is to be done. According to P2, there was not enough communication from the Client's side towards the Vendor in this respect meaning that new procedures were not thoroughly enough explained at the start. However, the Vendor's employees were good listeners, watched closely and learnt. The Vendor also held their own trainings on iterative methods. Adopting agility also meant changes in resource allocation and location. Arrangements are still ongoing to get team members co-located.

Agility improved coordination so that for example dependencies between projects came to be more visible and thus reduced risks. It has been attempted that teams working in the same program or area would be co-located if only feasible. P2 told about a situation where a team having employees both from the Client and Vendor was supposed to work as one team but it actually became to be two agile teams cooperating because of different locations, even though there were frequent visits and team members knew each other well. The work was nevertheless accomplished to satisfaction but the work arrangement was not good. According to P2 it was not the way agile teams should be organized, partially onsite and partially outsourced. As far as P2 knows so today teams involving the Vendor are separate, each having their own Scrum Master now.

For P2, co-location means that team members should occupy two neighboring rooms, not much further. Three years back there was a lot more emails addressed to the whole group; today face-to-face discussions replace email in most cases, email is only occasionally used. Meetings are another important coordination mechanism. IRC[4] is still used a lot, more than voice communication. With agile there was a change of culture to face-to-face.

[4] Internet Relay Chat (IRC) is a form of real-time Internet chat. It can also be used for conferencing. Both many-to-many and one-to-one communication is allowed. Chat and data transfers can be made, too.

There has always been more coordination towards the Vendor in the case of long term efforts. In those cases it does not necessarily mean any individual project but an issue that is as such of great importance for the Client. If a project or the system to be developed is more complex, it is a project related issue and temporary in nature; when the project is over it is no more complex. In maintenance projects coordination is mostly informal. P2 would actually wish that quick types of coordination mechanisms would be employed that easily also in other projects. To him it seems though that the Vendor's employees find it difficult to do so, except in maintenance projects.

According to P2 on average a major difference between Russians and Finns impacting coordination is that Finns value independence while Russians value more a collective approach to work. In projects both types of approaches are needed but there are drawbacks such that Finns try to reinvent the wheel alone while Russians wait for some confirmation from superiors before getting anything done.

In the future P2 would wish the Vendor's teams to become more independent and get into touch with customers directly. With independence it will be easier to keep track on changing requirements and accomplish tasks accordingly.

P3: Program Manager/Project Manager, based in St. Petersburg

The interviewee P3 used to be a Software Architect on the product level. He has been a Scrum Master and at the beginning of the year 2007 started as a Program Manager but still considers himself more like an expert, not a manager. P3 is employed by the Vendor but assigned to the Client's projects for years. Earlier he was the Client's employee for two years in Helsinki. His nationality is Russian. Before P3 started as a Program Manager the Vendor's employees in the Client's projects went with their problems to some Vendor executive. Now they come to P3 and he talks to Finland. The Vendor's management still continues to take care of office, local IT structure and similar things.

Today face-to-face communication and meetings are the most important means for coordination. Teleconferencing and IRC were used when part of one team was in Helsinki and part in St. Petersburg. Before adopting agility the Vendor developed

components or systems that were only part of a solution and teams at that time were only sub teams in a bigger project. A local sub project manager reported to a project manager in the Client's organization.

The problem was that team members at the Vendor's organization could not see the whole picture, were unsure about the true nature of requirements and often could not understand reasons for changes. People became dismotivated and started looking for other challenges. P3 pushed for changing the cooperation model. With agility there is now a vision at the start of some effort and this vision is communicated to all team members. There is a full project team in St. Petersburg now, it is no more distributed. At the same time teams in St. Petersburg are now more dependent on other teams working in Finland. Contacts to product owners are now more direct and the latest agreement between the Client and Vendor greatly enhanced visibility; but still there are now more coordinating dependencies between different projects.

The Client's organizational values are followed in St. Petersburg; new employees are being explained them, how teams are self-organizing and managers regard themselves as facilitators, not superiors. People working in the Client's projects are regarded by other the Vendor employees as experts in agile methods and are asked for advice. P3 thinks that the way work is coordinated in other parts of the Vendor's organization differs much from theirs. P3 told an example about problems in unit testing in a project at the time of adopting agile, how it took time before developers got used to the new order of doing things but that they worked it out within the team, among themselves. Another example was on knowledge sharing when a new type of project started; team members themselves organized it. There is, however, still some room for improvements left regarding daily meetings or sprint retrospective meetings because of their importance in the agile way of working.

According to P3 there is now less documentation. As to software developments practices, best practices are mostly regarded by the Vendor's employees as too project specific. Therefore practices are not that much documented anywhere. The Client has a separate team for software engineering processes and tools. Some teams use test preview approach where focus is on testing first and then developing.

As a manager P3 has the habit of asking each team member in each sprint retrospective meeting to draw a picture about his or her feelings at the moment. The idea is to sense what is going on in people's minds. He does not ask team members to explain the drawings. To improve coordination in general, P3 would like his team members to improve oral communication skills, including skills in English so that each could communicate more directly. New communication tools are already being adopted together with the Client.

P4: Maintenance Manager, based in St. Petersburg

The interviewee P4 is a Senior Engineer employed by the Vendor since 2003. Before joining the Vendor he received his education in Finland and was employed by the Client. His nationality is Russian.

According to P4 adopting agile affected development work in the Vendor's organization in a different way than the latest agreement from January 2007. Agile changed project development process, how work was done together. Regarding coordination, traveling either from St. Petersburg or from Helsinki increased because team members now attend monthly sprint review planning. Then there are weekly phone meetings to coordinate everything and these meetings are obligatory to all team members. Demo sessions are held with PSG (Project Steering Group) members. The sprint backlog is updated on daily bases, which has improved visibility a lot from the Vendor's perspective. Overall the agreement from 2007 kind of opened up the Client's organization for the Vendor's employees; they feel now they are part of the "Big team". In practice it meant access to the Client's internal networking resources which has helped the Vendor's employees to solve many issues independently by themselves directly with the Client. In the past there was always some intermediate person in-between the Client and an employee of the Vendor. P3 [Interviewee no 3] used to have that role before, for instance.

According to P4 coordination methods have variation depending on the type of the project or its scope and size. The procedures are less formal and strict for projects where minor versions and service packs are to be developed. For instance demo

sessions are usually omitted. For service packs, being maintenance issues, there are no demos to show even. A coordination method not mentioned the Client's guidelines but used in projects in the Vendor's organization is daily Scrum-of-Scrum –meetings. The purpose is to combine the issues discussed in separate scrum sessions so all information would be forwarded in detail to each team member from each scrum meeting. The method was adopted when sub team members did not get full description of what was reported on a Scrum meeting other than their own. The decision to make a change was made within the team. In practice this meant splitting daily Scrum meetings between offices, i.e. the Vendor's office and Client's office.

A Product Owner does not participate in daily sprint meetings, only the weekly ones and then performs his role by prioritizing things if necessary or giving business vision on possible questions being discussed. Overall meetings are the most used coordination mechanism today according to P4. Before agile, there were requirements specifications, hierarchies, error tracking procedures and the like in use.

Regarding the Client's guidelines in general, the document corresponds to the actual project roles in the Vendor's organization. The process improvement backlog is not always updated, or at least it is not usually included into the scope of the retrospective meeting. Those working in the Client's programme or team are quite separated from the Vendor's other parts. The Vendor's role is to solve administrative issues like rooms, furniture, HR and the like. The software development process is not affected at all, says P4.

The Vendor's employees belonging to the Client's teams travel to Helsinki for retrospective meetings, review meetings or trainings. It is very exceptional to travel to Helsinki just to solve some extra urgent issue. For some critical projects team members are preferably taken from one site only. There is currently a development project including testing of central components of a new product performed only by the Vendor's employees. People are not transferred from the Vendor's office to the Client's office or vice versa because of projects.

P4 has not noticed any cultural differences affecting coordination except issues related to language. He finds it a problem in the sense that the Vendor's employees are highly qualified and competent people; he knows them personally well from the past to be sure of their professionalism but still some remain silent in meetings. They are perhaps too shy to express themselves in a foreign language because they feel that they are not able to express the things the way as they would like to. People can read and write quite well. It is just about the speaking skills, caused by lack of practice in actually talking in English. There are language classes held in the Vendor's organization but not everybody makes use of that opportunity. All this affects work in the way that some information is not shared in interactive situations, meetings, in phone or face-to-face. Having separate daily scrum meetings in Helsinki and in St. Petersburg more or less solved this problem, according to P4.

P4 thinks coordination in projects could be improved by co-location. Nothing can be compared with face-to-face communication where questions can be asked and answered immediately. People do not have to phone anywhere or wait for an opportunity to ask questions.

P5: Program Manager

P5 is a Program Manager, which he was also three years ago. He joined the Client's organization in 1997 and was in his area from the start involved in projects with the Vendor. At that time the projects with the Vendor were minor and smaller projects. There had been outsourcing already a couple of years. However, according to P5, it has never felt like outsourcing because it has always been almost the same people from the Vendor's side and projects where there were the Vendor's employees were managed the same way as any other projects. Only teams have varied and tasks of course.

For P5, a minor version means for instance adding some features, a major version means making a new version or product. In P5's area it has always been so that the Vendor has developed components for products, not complete products, which have meant very close cooperation and daily communication. On the other hand it has been difficult sometimes for the Vendor's employees to understand how a component is

related to customers' requirements. It is one of the reasons that now the Vendor will be given whole products to develop, not just components. Overall, P5 thinks cooperation with the Vendor has been most successful.

At the time of the transition to agile world about 2.5 years ago there were side by side projects using waterfall and agile. One of the pilot projects was in P5's area and the Vendor participated in that, too. P7 was also involved in that pilot. In other parts of the Client's organization there had been pilots already before that. A lot changed at the same time in P5's area: product, project, and process.

According to P5 move to agile changed communication. P5's people were moved to developing a new product with agile from the start. In fact it was about changing the product line altogether. The new one would have been difficult to produce without agile. It was intentional to start with agile because traditional project methods had led to problems. It was easier to iterate and do piece by piece rather than try and make it in one big throw. For instance, changes can be made quickly. According to P5, with agile people have become much braver to say their meaning, make changes and openly admit if they had been wrong in some issue.

For P5, a project begins with certain product themes that should be implemented and get them to the customer. Themes are equivalent to project scope but the discussion remains on the theme level, not on the level of features, report views or the like. Instead there is some high level problem, or a value that is targeted. There is a schedule of course but everything is done in sprints piece by piece. In the Client's organization people are generally tied to some product area, not to projects. A new project means that themes change. The new task may be related either to consumer or corporate side. People doing the work do not necessarily change.

According to P5 the Client's internal guidelines for product development are followed in project work although the guidelines as such are leaving many things open. On the other hand the guidelines could be even more concise as a document; just describing the principles of iterative product development, monthly cycles, product back logs, priority order meaning next are done those things that have high priority. Things are not started

more than can be done in a month. The current guidelines describe more mechanisms, processes. One could tell more about prioritizing for instance, how important it is. There are no Vendor-specific guidelines. For instance the Vendor does its own Sprint planning like teams in Helsinki, the same way. Teams divide themselves into sub teams when needed, on both sites. Daily communication between the Vendor and Client is most frequent in the planning phase; usually people also visit each other then.

Exceptions from the standard procedure can be brainstorming meetings if it is about developing a completely new product. It happens in the requirements phase, at the start of the project; when product themes are so scant that people do not know from where to start. It is not known how each theme affects other products or the like. In that phase the product back log, the base is created together with everybody, including quality engineers. In P5's product area there is only one product back log that lists the things that are to be included in a product. Teams then make their own Sprint plans and solve problems one at a time. If cycles are longer coordination is lost. If there are many logs for one product, the focus is lost.

For documentation online-tools are in use. IRC is used much for quick questions rather than email. The product is complex so there is quite a lot of internal documentation for explaining things to others. Interestingly, teams like to put the most difficult things into online tools, perhaps to keep records and to let other teams know of a problem, too. Developers themselves decide how much they document but there are things like unit testing that is self-documenting when executed with high coverage.

Coordination between the Vendor team and teams in Helsinki is the most problematic coordination issue according to P5. In his programme the Vendor's team is one of the teams but located off-site, which in agile world is one of the most difficult things. In agile world people are supposed to be co-located. That is why there is the move going on towards giving the Vendor its own product to develop instead of components. Even with all the new means brought with new technology it is not just working if people cannot have coffee together, have conversations ad-hoc on the way to lunch etc.

Cultural differences have not affected cooperation. P5 thinks that the Client and Vendor share the same organizational culture and people know each other. But there are things such as Russians often seem to wait for clear orders before doing something. If a problem that has come from customer would be given directly to the Vendor they would ask for requirements first, or ask whether there is a business case or not, or the like. P5's people regard themselves as product developers, not as coders or testers or the like. The Vendor is after all a supplier and might be careful not to go outside its competence area or where there is some sort of discomfort. P5's people think that if a product is not selling it is our problem and try to do something about it, somehow. While starting with agile, P5 thinks that it was perhaps more difficult on the Vendor's side to accept the new incremental method without specifications made first. He thinks it was probably lack of proper training. It seemed like the Vendor's developers thought that it is not a professional way to do agile software development. People seemed to be so proud of their own competence.

P5 thinks that nearness helps in the cooperation. The Client has hired quite a many Russians also in Helsinki. This fact helps in communication with the Vendor, too. Between professionals like in this industry P5 thinks cultural differences have minor influence because people have similar education. Coordination is being improved further by assigning a maintenance manager on the Vendor's side, too, to act as a coordinator for maintenance and towards R&D. Soon there will be the project manager role also on the Vendor's side. Only the product manager role still stays with Helsinki.

P6: Vice President, Research & Development

The interviewee P6 is the one that owns the Client-Vendor relationship discussed in this case study. He joined the Client's organization three years ago but has been more actively involved in issues related to the Vendor since autumn 2006 when preparations for the latest agreement between the Client and Vendor were started. According to P6 the Vendor was then given more responsibilities and independence. Interfaces and operation modes were clarified. Earlier the Vendor's role had been more of a supplier but now the Vendor follows the Client's processes and operation modes as defined in the agreement. Projects that involve the Vendor's employees are treated the same way

as any Client's projects. The Vendor uses the same practices in program organization as the Client.

Earlier agreements with the Vendor had been more like contracts with project plans, delivery schedules and project milestones. The current agreement is in that sense completely different and begins to resemble co-sourcing as defined by Kaiser & Hawk (2004). In fact, P6 could state that the definition describes the situation between the Client and the Vendor in exact words:

> Outsourcing traditionally has meant having work performed by an outside party. Co-sourcing, on the other hand, has been defined as an outsourcer and the Client melding their human resources to accomplish the Client's work. It requires a long-term relationship and an emphasis on values traditionally associated with partnerships. The Vendor works so closely with the Client employees that it becomes immersed in the Client's way of doing business. We define IT co-sourcing as when the Vendor can replace or augment the Client's IT competencies. Project teams are mixed. And leadership can come from either one. Effectively, both organizations' resources become part of a single team aimed at accomplishing the Client's needs. (Kaiser & Hawk 2004, 70-71)

When thinking three years back in time P6 has understood that the Vendor had hoped for more visibility regarding the Client's modes of operation. The cooperation had already then continued over 10 years. Also, it was about the Vendor's motivation and quite understandable because at that time the Vendor could only see bits and pieces of the Client's organization from here and there. That is why now one thing is finalized as much as possible on one site so that responsibility also stays there all the time. According to P6 this is a big change and an improvement in the relationship with the Vendor. In addition the aim is to bring product ownership so close to the development team as possible, again to improve motivation and understanding of entities.

The Vendor adopted agile methods a bit slower than the Client although there was variation depending on the team. The Vendor did not perhaps get as much support as employees in the Client's organization. Also, there were not such champions among the Vendor's employees that would have speeded up transition. P3 who is now leading the program in the Vendor's organization was properly trained into agility and he has been very actively promoting agile methods since then. It is a process that is still ongoing. Despite some slowness the Vendor can locally be considered as a pioneer in St.

Petersburg like the Client is in Finland regarding large scale application of agile methods.

Three years ago coordination used to be for the main part coordination, "coordination by formal mutual adjustment". The most important coordination mechanism today is co-location with intensive regular two-way communication, or "coordination by informal mutual adjustment", which is actually how agile can be made to work. The Client is not working in an ad hoc manner; the Client has systematic structures how roadmaps are taking forward and how work is to be prioritized.

According to P6, there has been intensive communication between the Vendor and the Client for long. Tools have been improving of course, and with the latest agreement technical infrastructure allows complete visibility which should decrease need for coordination. There is continuous improvement going on of course, when something comes up. For instance quite recently it was agreed with P3 [=a Program Manager at the Vendor] that there will be a regular meeting with him every second week in the future. In addition, there is now a management team comprised of program managers including P3 from St. Petersburg and respective managers from other off-site offices. That team has now a weekly meeting lasting 15 minutes. This change was made as part of the Client's reorganization. It has also been planned that product owners should in the best case occupy the same room as the development team to ensure good project results. In the Vendor's case the product owner still stays in Helsinki. Enhanced regular communication is being done to make up for that.

The aim is that any team has end-to-end responsibility and makes "complete systems" from beginning to end. There are always dependencies from the start, smaller or bigger; it cannot be completely avoided. Now teams are allowed to make changes to components. However, there still is a mechanism to ensure that possible changes made by team are acceptable at the level of the whole system. Components are used by other teams, too.

According to P6, there is certain difference in culture. Agility is based on self-organizing independent teams but some Vendor's employees seemed to continue waiting for

somebody to tell them what to do, instead of taking initiative. The Vendor's employees can typically read and write English but not speak that well. After teleconferences were partly replaced by IRC there was much more communication from the Vendor's employees than earlier. If P6 is present in retrospective meetings it seems that The Vendor's employees find it difficult to say their meaning, are not sure whether they can speak openly when a person like P6 is there. Overall there could be more feedback from the Vendor's employees in interactive situations.

P7: Director, Software Processes and Tools

The interviewee P7 is currently responsible for process and tool adoption but earlier he has been in projects where products were developed together with the Vendor. P7's nationality is Portuguese. The last project P7 took part in was the first one done with agile where the Vendor produced only a small part of a product. In the waterfall times there was a clear big part of the work that was developed by the Vendor. Some of the projects in the waterfall time with the Vendor were already done in one month iterations even though time-boxing[5] was not so tight.

According to P7 the Vendor's employees were part of the same team but only located off-site. After adopting agile, team members meet more often and discuss more in phone, too; documentation has a smaller role now. Overall, coordination takes place on person-to-person level, in the relationships between persons, also because team members know each other well from the past. A recent finding from P7's visit to St. Petersburg in October 2007 when reviewing cooperation methods was that there needs to be someone in the Client's organization that represents the Vendor in the Helsinki office, and visa versa. For the time being there is one Maintenance Manager in Helsinki that helps the Vendor's employees to get their issues handled in Helsinki. From the Vendor's perspective this is an important coordination mechanism. According to P7, also the Client should have a representative at the Vendor's site.

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[5] Time-boxing is a time management technique. It means splitting a project up in a number of separate time periods, normally two to six weeks long. Each part has its own deadline and budget. Deliverables can be adjusted but not the dates. Agile methods ensure the delivery of the highest priority. See for instance Larman 2007, 13 and 54.

Generally P7 thinks that coordination needs to happen on both sides and across sites when doing agile software development in multi-sites. Teams should be divided among multiple sites. The cross-site coordination should win the local coordination on sites. According to P7 in the agile software development there is today a move going on towards "feature teams". The features developed offshore from the back-end to the front-end of a product would be more close to those customers close to the Vendor.

At the beginning of transition to agile there was a training session, two so-called "attack-weeks". R&D was stopped for that time. P7 thinks the attack-weeks were not sufficient for people to learn the method. At the Vendor there were some early adopters and that helped the Vendor. Lack of training and support resulted in things like some teams just stopped having daily meetings because they felt guilty when reporting what they were doing. They were uncomfortable with visibility towards their tasks. This would not have happened if they would have been trained to understand the meaning of the daily meeting in the Scrum methodology; that it is at the same time a design meeting, requirements meeting and many other types of meetings combined. This happened according to P7's understanding also in the Vendor's organization. People were heard to say that "we are already in the same rooms, why do we need the daily meeting". P7 thinks this was one of the biggest issues in the transition and the reason is that people were basically given a book and told to "do it". There are still teams that follow waterfall method within iterations and product owners are still not directing the project as it is suggested in the scrum framework. Product owners have a key role in the Scrum method.

After the attack weeks there were three pilot projects and then the methodologies were standardized and the current guideline for product development was drafted. The iteration cycle is based on the Scrum methodology but there is a governance layer and a market testing layer added by the Client because the Scrum does not address multi-project coordination at company level. A Scrum-of-Scrum meeting is part of the Scrum structure but is not followed. Quote:

> And I would say right now coordination is pretty much in the hands of the people that are coordinating the projects and they are doing it in different ways depending on their own experience and knowledge.

Face-to-face communication is much used. The Vendor's employees contact directly somebody in the Helsinki office if there is an issue to talk about. There is no one in-between. If they use email then the whole team is informed. If it is a bug-tracking issue then they use the same system on the server as the Client's employees. If there is something they just need help with they just use the phone. This is an example of one-to-one communication and local dissemination happening in the absence of an ambassador in-between. Quote:

> So I am pretty sure most of the people are using standard ways of solving that problem of lack of coordination but there are no guidelines to that.

When compared to times three years back, the train is now much more used than phone. The iteration cycle has changed a lot the way how coordination takes place. There are shared planning meetings and shared review meetings. Every month somebody's in St. Petersburg or somebody from St. Petersburg is in Helsinki. There are several projects going on. During the past five years project length has been reduced but in man-months grown in size.

As P7 understands it, the Client is trying to avoid coordination stating that every team should have end-to-end responsibility; it should be responsible for developing the whole system including integration. According to P7, in the Client-Vendor cooperation there is always going to be heavy coordination. The Client's prevalent approach is by division of components so that the Vendor does one component, Helsinki another and then they are integrated. Some projects are facing problems because they have not realized the importance of coordinating changes with other teams from the start. Teams in Helsinki are often too busy to serve requests from Vendor teams, which means it is difficult for Vendor teams to get the thing done. In P7's understanding the result is ad hoc coordination because coordination is needed anyway. The project that is less critical gets easily under-served. Thinking end-to-end responsibilities dependencies are often forgotten.

Cultural differences impact coordination for instance in meetings where most Vendor employees expect to be told what to do while in Helsinki people expect to say what they will do next and get feedback from other team members. It is even more difficult in

phone; seemingly it is partly a language issue. In face-to-face situations there is more interaction. St. Petersburg people can easily be met every week and the amount of communication taking place without talking that much is already considerable. People know each other so well. St. Petersburg people are highly qualified people.

To improve coordination further, P7 would, besides feature teams, hope that product owners would be traveling more in order to improve their motivation and get them really engaged with teams in the Vendor's organization, particularly now that the Vendor is developing their own products. St. Petersburg is close and one full business day can be easily arranged there.

P8: Program Manager

P8 had already left the Client's organization at the time of the interviews but he commented by email. P8 had for years been involved in the Client-Vendor cooperation. According to P8 the Vendor's employees were not that ready for the amount of communication that the successful adoption of agile methods would have required. This became evident for instance at the sprint planning meetings, particularly when the meetings were held in Finland. When the meetings took place in St. Petersburg Russians took part in the discussion more actively. The reason must have been in language capabilities because the Vendor's employees are highly competent professionals and knew their job. P8 would have thus hoped more active participation from Russians also because of substance reasons.

Management style is in general different in Russia according to P8. The Client's management style could be called coaching when in Russia the style is authoritarian. In the Vendor's organization there has been considerable change in the course of the cooperation. However, it is still not that easy for a Russian to question the decisions made by a superior, even less so if early attempts have somehow failed. On the other hand, P8 says that managers in Russia at times like to remind employees of their superiority; a minor issue can turn into a big debate that is in the end won by the manager.

5.3.3 Overview on the Client's Coordination Mechanisms

The overview is based on the analysis of interviews. The procedure has been interpretive in nature advancing by themes and including comparison of summaries to identify similarities and dissimilarities across interviews, and reexamination of interview transcripts over again to get understanding of the coordination mechanisms.

The most influential coordination mechanisms used by the Client as based on interview analysis are consolidated into Table 7. Sabherwal's (2003) classification of mechanisms into four principle categories has been applied here. However, standards as a coordination mechanism were not mentioned by interviewees. When specifically asked whether they could recognize any such standards used in the Client's organization as listed in Sabherwal's study (2003) interviewees could not name any.

Category	Coordination mechanisms	P1	P2	P3	P4	P5	P6	P7
Standards	None were mentioned by interviewees							
Plans	Product roadmap (product release and phase out timetable)			x			x	
	Product backlogs (all functional and nonfunctional product requirements)	x	x	x	x	x	x	x
	Project and milestones plan		x					
	Sprint backlog (what is to be developed in the next iteration)	x	x	x	x	x	x	x
	Current The Client-The Vendor agreement			x	x	x	x	
	Product life cycle management process (The Client's guidelines)	x	x	x	x	x	x	x
Formal Mutual Adjustment	Project steering group		x	x			x	
	Sprint planning meetings (max 1 day)	x	x	x	x	x	x	x
	Status review meetings					x		x
	Daily sprint meetings (15 minutes)	x	x	x	x	x	x	x
	Weekly meetings	x			x			
	Scrum-of-Scrum (Meta-Scrum) meeting	x		x	x			x
	Ambassador roles (at The Client's and The Vendor site). Currently local Maintenance Manager has this role.					x		x
	Brainstorming sessions.					x		
	Russian speaking employees at The Client					x		
Informal Mutual Adjustment	Co-location		x	x	x	x	x	x
	GetTogethers			x				
	Personal visits		x					x
	Voice communication (teleconferences, phone calls)	x	x	x				
	Net-enabled communication (Office Communicator, IRC, email)	x	x	x			x	
	Retrospective meetings	x	x	x	x	x	x	

Table 7. Main Coordination Mechanisms Used in the Client's Nearshored Software Development

What coordination mechanisms are being used by the Client in nearshored ISD and why

Coordination would have to take place on both sides, at the Vendor's and Client's, and across sites between various teams. Coordination is interpersonal and face-to-face whenever feasible. Documentation is avoided. It is also what iterative methods recommend.

In the guidelines the Client emphasizes end-to-end responsibility of the teams, meaning that every team is responsible for developing the whole system. Teams are self-organizing. The aim for end-to-end responsibility does not mean that one would not need to coordinate with others, but that there will be clear local ownerships. Activities are coordinated transparently in the way that it mainly takes place in one-to-one interactions. Investments in coordination are made if it proves to be necessary for the success of software development.

Each category of coordination mechanisms is shortly discussed in the following.

Standards

Interviewees could not recognize any standards the way the notion is understood by Sabherwal (2003) having been used as coordination mechanisms in the Client's software development activities. One reason must have been that interviewees did not quite understand what is meant by the notion "standard" in the context of coordination. It is possible that there is coordination according to standard-like activities but that was not detected in this research. The Client may for instance call the respective coordination mechanism in some different words and therefore interviewees could not recognize the type.

The use of standards is formal and impersonal in nature; interorganizational mechanisms of that type come close to being easily perceived as control rather than coordination. The Client's software development is performed following agile methods where interpersonal interaction has a central role. The interviewee P6, the owner of the Client-Vendor relationship, mentioned that there are certain control points in the

procedure but these are not part of everyday software development work as it is seen here in this research.

Plans

The most commonly mentioned mechanism was the product log maintained by product management. It contains all functional and non-functional requirements from all stakeholders for each and every product. It is the centre of all action. The product log also includes a list of priorities for requirements and features to be developed. There is a rolling 12 month project roadmap but it was mentioned only twice. A project plan was mentioned only by one interviewee.

The current agreement between the Vendor and Client was not much referred to by interviewees except in the connection of improved mutual visibility which has facilitated and reduced coordination.

Formal mutual adjustment

The Client's guidelines for product development process are followed throughout the Client's organization, also at the Vendor's. There are scheduled daily and monthly meetings as according to the Scrum methodology and the Client's guidelines.

In the adoption of guidelines and Scrum methods there is variation depending on the product and programme as well as the type of project. For example, a project manger may use in addition weekly meetings.

Brainstorming sessions are held by the Client at the beginning of some effort but they are used mainly to figure out what to do next with respect to some product or product line. The Vendor has at times adopted a similar method at the start of a project for information sharing.

Informal mutual adjustment

Coordination takes place mostly face-to-face whenever possible and employees are encouraged to contact directly if they have something to ask. Not all meetings are held

face-to-face but today for monthly Scrum (a.k.a. Sprint) meetings all team members gather to the same location.

Coordination is adjusted informally and mutually by an individual team member, within a team, or within teams or team members in different teams.

Conclusion

All interviewees have adopted the agile thinking to the extent that some even had difficulties when trying to think in terms of the waterfall model, for instance traditional project phases. However, all recognized the coordination mechanisms detected by Sabherwal (2003, 158) with the exception of standards, and when asked, could not tell if they would not be using any from that list anymore, excepting perhaps only requirements specification and hierarchies. Interviewees explained that the Client's management is focused on results.

Notably some interviewees repeatedly seemed to think of mainly communication when the topic was to be coordination, i.e. "coordination mechanisms" made them think of "communication mechanisms".

The overall impression is that the use of coordination mechanisms is fairly standard throughout the Client's organization, at least based on interviews. Variations however occur. Thanks to the relational uniformity of mechanisms, the Client's employees know how the Vendor's employees are advancing in the development work even though there were some problems deriving from language capabilities.

5.3.4 Coordination Evolution

Move to agility

In the past 3-4 years one single factor above all impacting coordination mechanisms has been the adoption of agility. The Client's product development guidelines are followed also by the Vendor. Move to agility has meant less documentation, more face-to-face

communication, team independence, joint decision making in more frequent regular meetings, and a new emphasis on the product owner's role.

Due to end-to-end responsibility and self-organizing teams coordination is on one hand hidden and invisible because it happens every work day through various mechanisms and on the other hand, paradoxically, coordination is heavy; it is present all the time starting from a daily meeting every morning, within a team and in between teams. If team independence has increased then maybe task dependence has increased with agility, too, resulting in more coordination than earlier. Each Vendor team member is encouraged to contact directly team members in the Client's organization without an intermediate, which is bound to multiply the number of contact points and thus in many cases increase coordination. The lack of component ownerships further increases dependency between teams.

The latest agreement

The latest agreement between the Client and Vendor effective from January 2007 affected coordination indirectly by improving mutual visibility in practical issues such as enabling use of same servers, same human relations policies and same internal training. At that time cooperation was publicized and those Vendor's employees that are dedicated to the Client's projects are given email addresses and business cards in the Client's name.

The most important affect on coordination was that with the new agreement the cooperation model between the Client and Vendor was changed so that the Vendor's teams are independent teams. Dependencies have thus been on the increase in this respect.

5.3.5 Issues Affecting the Client's Coordination Mechanisms

This Section summarizes the main factors detected in interviews having affected coordination. When looking into the summaries it should be taken into account that the relationship between the Client and Vendor is continuous and has lasted over 10 years.

Factors affecting coordination mechanisms according to Sabherwal

Sabherwal's (2003) model for evolution of coordination mechanisms during projects suggests that coordination mechanisms are affected by so-called **system** and **project attributes**. If a system to be developed is important for the Client's business, there tends to be more coordination activities in the project. If the task is complex it again tends to increase coordination efforts. Project attributes concern interorganizational relationships.

System Attributes: Complexity and Criticality

The possible impact of system attributes on coordination has been avoided by adopting agile methods company wide for over three years now. In an agile world, coordination is part of daily work in all projects regardless of their importance. Before agile adoption some projects tended to last a year or longer. The project work was coordinated in bigger batches, which brought along results that were not satisfactory. Even after agile adoption there have been projects that have got less attention, been less coordinated but it is because of their perceived insignificance. In practice it has meant that in such projects it is more tedious for team members to get support needed from other teams.

During the past three years or so the scope of the projects has grown. The number of iterations as such does not predict enhanced complexity. Projects where the Vendor has participated have for years already been as challenging and complex as any other projects. The increased scope of projects brings along complexity and is reflected on coordination because of increased dependency on the work done in other projects. If a team is not co-located as in the case of joint Client-Vendor project teams, the sheer distance increases coordination activities between different teams.

Project Attributes: Uncertainty, Efficiency, Equity and Relational Quality

According to Sabherwal (2003) there are four kinds of project attributes that can have implications for outsourced information system development.

Uncertainty factor could be registered in most interviews as lack of visibility. From the Client's side it has meant uncertainty for instance regarding human resources management. High uncertainty alone tends to require more interactive coordination mechanisms but the adoption of agile system development 3-4 years ago further intensified the need for increased face-to-face communication. With the latest Client-Vendor agreement responsibilities have been increasingly spread evenly between the Client and Vendor. Visibility was greatly improved with shared bonus systems, servers and other measures both from the Client's and Vendor's perspective. All team members; the Client's or Vendor's employees should now be equally informed and trained. However, the preferred option for team working would still be co-location and even the representatives of stakeholders should be sitting close to the team members. The main source of uncertainty seems to be the fact that multiple teams work distributed in multiple sites.

Efficiency concerns were much less present in the material than the uncertainty factor. The long successful relationship alone serves as a valid proof of expectations met from The Client's perspective and the renewed wider agreements between the Client and Vendor should prove the same from the Vendor's perspective. Both parties have wanted to invest in the relationship. Both the Client's and Vendor's companies represent expert organizations. To an outsider it seems that highly educated professionals from the two companies have high respect for their counterparts and enjoy their high level of competence in joint teams. What regards communication capabilities there is, however, still some room for improvement on the Vendor's side. This is partly to do with using non-native language, partly coming from cultural differences in the management style. One reason to reluctant interactive communication may be the simple fact that the relationship between the Client and Vendor is, after all, a contract relationship between a Buyer and Seller. As a seller, one tends to behave in a more conservative manner because you have less choices and thus less willingness to take risks. I could sense political correctness in those interviews that were made with such employees that had seen both sides in the relationship from an employee's point of view.

Equity concerns the fairness in the dealings between two parties. There were no instances of opportunistic behavior reported in the interviews. Interviewees' memory may, however, be blurred for reasons like political correctness or loyalty to employer. There have been instances of management intervention but they are to be regarded as exceptions and have occurred under specific circumstances at least in this material. Probably the presence of continuous informal mutual adjustment has had its impact in addition to long term relationship and experience from colleagues on the other side. There is trust between the Client and Vendor that has its roots and history; the cooperation of the two companies was started by founders of the two companies when both of their companies were still in their infancy.

Relational quality should influence the evolution of interorganizational relationships and be enhanced by similarity of language and culture. Indeed, the team members in this Client-Vendor relationship, Russian or Finnish, all speak the same language of software engineering; they share a similar type of educational background and have been working together as a project group for years. Personal bonds have been developing and there has been job rotation between the two companies. Along with the adoption of agile methods, interactions between team members and now also between team members in different teams are daily. Nevertheless, some impact of cultural differences was to be found related to interactive situations.

The Impact of cultural factors on coordination mechanisms

Good reading and writing skills but lack of speaking skills in the English language among the Vendor's employees has affected coordination. Information sharing has suffered and impacted projects that way. If meetings are held in St. Petersburg there tends to be more active participation in the discussion from the Vendor's side. If meetings are held as teleconferences the Vendor's employees tend to talk less than in face-to-face –situations.

Language is part of culture and mirrors cultural values; authoritarian management style prevailing in Russia is one factor to be noted. The Vendor's employees talk even less in meetings when an executive is present. When things come up the Vendor's employees

tend to wait for orders first before action. They hesitate to contact directly somebody in the Client's organization to solve some problem independently, without a manager. Superiors' opinions are not easily questioned. Inexperience with team working and making decisions within team by team members, for instance creating binding work estimates for the next sprint, has required some learning.

Coordination has been changed for cultural reasons for instance by nominating local Scrum Masters or by organizing knowledge sharing to allow free information flow. There has been learning on the way to the extent that the Vendor's employees working for the Client have a work culture that reminds more the one in the Client's organization than any of their local work cultures in the Vendor's organization. Cultural normalization has taken place through informal meetings, social events, and training.

In the following Table 8, P denotes for interviewees that are numbered in the order of interviews made.

Event	Changes in Coordination	P1	P2	P3	P4	P5	P6	P7	P8
Lack of Oral English skills	Local Scrum Master nominated. Local Scrum meetings' results transmitted by Local Scrum Master to Finland. Irc more used than voice communication. Face-to-face favored.	x		x	x		x	x	x
Caution in expressing own thoughts & ideas. Afraid of uncertainties.	Knowledge sharing arranged. Face-to-face favored. Visibility towards The Client improved. Plans to nominate ambassadors. Co-location.	x	x	x	x	x	x	x	x
Orders before action	Sharing The Client's values and culture. Culture normalization.	x				x	x	x	x
Inexperience in team work & culture differences in decision making.	Face-to-face communication. Personal visits. Co-location. Support in adopting new methods.	x					x		

Table 8. Cultural Factors Impacting Coordination

Cultural compatibility and team working

In Finnish-Russian teams there are easily two kinds of approaches present. Both may disturb team's work and be problematic in environments where there are dependencies between teams. Finns have a tendency to work too independently and Russians may value collectivism too highly; qualities that at times are most useful for the project depending on the situation at hand. Instances of this kind came up in the interviews, which are to be considered as examples of the impact of national culture.

The findings from literature as discussed in Section 3.2.4 support the findings from interviews in this case study. Russians' inexperience in team working repeatedly comes up in research and it has its background deep in the national culture.

Continuous and long term nearshoring contract

In terms of the nature of the outsourcing contract, it can be concluded based on the interviews and the subsequent analysis that there are no major differences in coordinating software development work that is performed as part of the continuous outsourcing partnership with the Vendor compared with the work without the Vendor's involvement. The guidelines are the same for the Vendor and they are also followed by the Vendor the same way as by the Client's organization.

The long relationship has created a situation where the Vendor and Client seemingly share the same work culture and values and can produce high quality results in cooperation. The impact of experience is tangible on the relationship; experience helps in making tradeoffs and tough decisions in project work. One could even think of the Client's work practices are too dominant in this particular relationship; the Vendor's employees begin to form an island of their own in the Vendor's organization with their particular organizational subculture.

Other considerations

Coordination is impacted with the fact that a Client-Vendor relationship is, after all, a relationship between a Buyer and Seller. To take an example: from the Vendor's

perspective it is business wise sensible not to take too much initiative without reasonable certainty that the intended action is acceptable from the Client's perspective. In IS literature made from the Vendor's perspective the consequences from the base of the relationship have been detected for instance so that the Vendors don't like vague criteria for acceptance at every testing stage. They want to know what the target is and when they are done with it. What has earlier been said here in this thesis on cultural impact must be reflected against the background of hard business facts.

Coordination costs did not surface as a major influencer on coordination. For instance none of the interviewees mentioned having tried to reduce coordination in the purpose of saving costs. On the contrary, during the years the Client has been improving coordination whenever there has been some way to do it, and continues to do so. The Client seemingly has no intention to change its supplier. Interviewees emphasized that if something is to be successfully developed then the perspective is long term.

5.3.6 The Client's Methods and Coordination Practices Actually Used

This Section describes how coordination is actually agreed upon in the joint software development teams between the Client and Vendor. Examples from coordination and its evolution in one, still ongoing, project are presented to support findings from interviews.

Project events

In the course of the seven interviews it turned out that interviewees had little if nothing to tell about projects phase by phase. Interviewees said that they do not remember unless an event has been such that has had a more dramatic impact on them personally and/or on the project work in general.

An example of such an occasion: a project had one of its first meetings in St. Petersburg and P1, the Scrum Master of the team, had only recently started as a Client's employee. A Vendor's employee acted in the Scrum Master's role and led the speech at the meeting. In the first part of the sprint meeting the product owner discussed the product log and went through features that the team would be supposed to get done in the next

sprint. In the second part of the scrum meeting the team is supposed to end up with a rather detailed work estimate on tasks to be completed during the next sprint.

In the course of the discussion P1 felt forced to interfere and demand for such work estimates that team members all could accept and according to which the work could truly be carried out as planned. In the eyes of P1 the Vendor did not enough understand the seriousness of making work estimates; the success of the whole project was, to P1's understanding, in danger if work estimates for next sprint would remain as loose and vague as they were about to stay. This occasion was the only one when P1 has had to adopt a manager's role instead that of a facilitator's.

A probable reason for the behaviour on the Vendor's side in this incident has been that this incident took place only shortly before the new, wider agreement between the Client and Vendor came into force. With the new agreement the Vendor's employees received quotas in the Client's internal training that at that time often dealt with agile system development and its ideas. In the agile-type system development coordination supposedly happens within the team, by team members themselves.

With the adoption of agile methods, projects became shorter in time. The main part of the teams' remains the same from one project to another both on the Finnish and Russian side, and this has been the case even before the adoption of agile methods. People know each other from years back in the teams and sub teams. Documentation is not supposed to be used much in the agile world; instead people should communicate face-to-face. What happens in the projects is duly registered into the product back log, the centre of all action, but it is fact-based. There is variation in practices so that for instance records from sprint retrospective meetings are not kept by all projects. There is much data in the product back logs available for research but as a rule they do not include any background information or reference on changes in coordination, their reasons or triggers, for instance.

Only P3 was able to deliver prints from retrospective meetings for analysis. The project is still ongoing so the set is not complete; a full set of one project would be comprised of 6 x 3-4 pages titled "Keep Items", "Problem Items", "Try Items", and possibly "Drop

Items", stating in one line an issue. Even this type of "minutes" is considered tedious by P3 – taping and video recording is now being tried instead – and some interviewees prefer to avoid registering issues that might be considered sensitive by some team members and thus restrict open conversations in the future meetings.

Retrospective meetings of three Sprints in an ongoing project

A Sprint retrospective meeting is time-boxed to three hours and it is attended by the team members including a Scrum Master and usually a Product Owner. The meetings are held as part of Sprint review meetings at the end of each iteration (a.k.a. Sprint) and the idea of the meeting is to give the team an occasion to change rules. Rule changes should ideally originate from the team, not from management. For more on Scrum work methodology please refer for instance to Schwaber (2004).

There will be approximately six sprints or iterations in the project, which can be considered a standard today in the company. The project analysed here is more challenging than usually has been the case in the Client-Vendor cooperation because of the amount of dependencies to other projects. The project can also be characterized as critical and large by scope. Clearly the demands set for this project regarding coordination are high even without the outsourcing context. The setup is easier in the sense that the team working in St. Petersburg is now an independent team, not a sub team.

In the following Table 9 the columns list issues related to coordination. The issues are such that could be found in the prints from the retrospective meeting of the first Sprint in an ongoing project. The issues related to coordination have then been categorised according to Sabherwal's (2003) classification of coordination types, which is shown in the first row. The second row describes the change in the coordination mechanism, i.e. what has been decided in the retrospective meeting by the project team. The third and fourth row show the change in Project Attributes, first according to Sabherwal's (2003) typology, then what actually had occurred in the Project Attributes that has caused the change in coordination mechanisms. The last row describes the issues that have affected coordination mechanisms.

Sprint 1 **Issues related to coordination**	Daily meetings	Weekly meetings	Communication with other teams	Face-to-face communication between the Client's and the Vendor's employees	Office Communicator	Support from other teams
Type of coordination according to Sabherwal (2003)	Formal Mutual Adjustment	Formal Mutual Adjustment	Informal Mutual Adjustment	Formal Mutual Adjustment; Informal Mutual Adjustment	Formal Mutual Adjustment; Informal Mutual Adjustment	Formal mutual adjustment
Outcome of change in the coordination mechanism	Daily meetings must not last too long.	Weekly meetings came to be considered more important by team members, compared to daily meetings, e.g. regarding changes in requirements.	More one-to-one communication.	More meetings face-to-face instead of teleconferencing. The Client's specialist visits to The Vendor's office when needed.	Meetings recorded, no need to make minutes any more. Team members absent from some meeting can watch the tape.	Dedicated specialists in the project. Dedicated support from other teams in problem areas.
Change in Project Attributes according to Sabherwal (2003)	Efficiency Relational quality	Increased uncertainty	Uncertainty	Uncertainty	Efficiency	Uncertainty
Change in Project Attributes	Too detailed meetings.	Project's stakeholders supposed to attend daily meetings but often they are too busy to attend.	Need to improve common understanding. How to do testing.	Need for information sharing.	Need for information sharing.	Need for information sharing.
Project Events (Issues affecting coordination mechanisms)	Too much to do.	A new project with new team members, some were unfamiliar with work practices.	A new project + project dependency	A new project + project dependency	Not time enough to make accurate minutes. Need for info sharing.	Dependencies to the Client's teams. New technology. Excellence in narrow fields of technology required.

Table 9. Coordination Mechanisms and their Evolution in a Project

Table 9 is based on the retrospective meeting from Sprint 1. In the retrospective meeting of Sprint 2 there came up additional issues such as:

- The Scrum Master is too busy with an issue; so it was decided to rotate the Scrum Master role
- Also the "showman" role went on rotation meaning that others can conduct a demo, too
- Need to discuss some issue more detailed than in a daily meeting; it was decided to have separate meetings dedicated to such items
- People from other teams help with some functionality and later they have questions related to what they did; it was decided to invite such people to sprint demos to see the result, to learn, and also for efficiency reasons

There are no records available from the retrospective meeting of Sprint 3 because there was nothing new to be told, people were at the moment happy with the latest decisions. Moreover, some items discussed in the retrospective meeting of Sprint 2 were still being worked out by the team.

In the Client's guidelines for product life cycle management process there is a list of the most common mistakes when using the guidelines. Interestingly, one of the 12 topics mentioned deals with forgetting dependencies to other teams and negotiating them. The challenge presented by dependencies has thus been recognized by the Client.

6 DISCUSSION

In this research I have approached the use of different coordination mechanisms, their evolution and factors impacting coordination from the viewpoint of chosen prior research. IS research has mainly been made in the context of traditional software development methods like the water fall model. However, in the case study the Client has already for over three years carried out projects with agile methods also when nearshore outsourcing software development work to Russia. In the agile world teams are self-organizing, have end-to-end responsibility, are co-located; customers take part in the project work and face-to-face communication is preferred over written documents. Work is done in iterations each delivering useful software and lasting 3 to 4 weeks. An agile project has approximately 6 iterations. The context is in many ways altogether different from that of traditional software development and, respectively, affects coordination.

The Client started to adopt agile methods in order to shorten the life-cycle of product development. The length of projects had become too long and in the traditional software development process it was difficult to make changes while the work was still going on. Iterative style development is also a way to reduce risks. Before adopting agility, the Vendor's teams worked as sub teams in a Client's team and developed a component to a system that was completed by a Client's team. Even though the Vendor was doing continuous project work it was contract based. The Client-Vendor relationship is now based on a frame agreement made 1.5 years ago after which visibility was mutually improved so that the Vendor's employees have in many respects the status of a Client's employee.

The core of the Vendor's employees, and for that matter, the core of the Client's employees, has remained the same through the years. People have come to know each other well and by now share the same values. Organizational cultures have

become compatible. The personnel are highly motivated on both sides. This affects coordination to the extent that, as one of the interviewees stated, there is a fair amount of communication already going on without words even without face-to-face contacts. Also, both the Vendor and Client are already mature organizations in software development. Experience has amounted by learning. Usually if any challenges are met in software development or if there are issues that need joint attention these are mostly not Vendor-specific at all but applicable to any of the Client's software development activities.

The Client may have started nearshore outsourcing to Russia partly because of saving costs but the main driver has always been the search for competence. At the start of nearshoring the Vendor based in St. Petersburg happened to possess the type of competence that complemented the competence in the Client's organization. In today's situation when wages for engineers and other specialists in St. Petersburg have almost reached the Finnish level the main consideration is to keep the competence acquired in house. The personnel both in Finland and in St. Petersburg have stayed long in respective organizations, which is exceptional in particular regarding the Vendor's organization and the situation in St. Petersburg in general.

Interviewees expressed high respect for colleagues because of their competence. There have been occasions when corrective measures have been made but generally both the Client and Vendor continue investing in the relationship, which shows belief in the relationship and its benefits.

It could be concluded that the reason for nearshoring for the Client is the quality of the relationship and the competitive advantages brought along with it, not the costs. Nearness is of value in this particular Client-Vendor relationship because personal contacts have to be frequent between teams working in Helsinki and in St. Petersburg. The Client used to have a supplier earlier in Moscow but distance was too big, travelling too time-consuming and moving inside the city of Moscow slow because of traffic jams.

Coordination mechanism used by the Client

The findings from the case study show that the Client has no Vendor-specific company guidelines for coordination of software development nearshored to the

Vendor based in St. Petersburg. Projects are coordinated the same way as in purely internal software development. Most coordination occurs between teams and individual team members. Coordination mechanisms used most are regular meetings, product logs and net-enabled messaging complemented with voice communication.

Agile methods require daily, weekly and monthly meetings of a team and in addition less regular but necessary meetings between individual team members from different teams that are dependent on each other. Interactive face-to-face communication is preferred and used in all actions whenever feasible. Good connections between Finland and St. Petersburg allow frequent meetings between teams and team members even at short notice. Telecommunication connections are satisfactory today and allow the use of IRC and other similar means of real-time communication for ad hoc messaging and exchange of opinions.

Cultural differences have little impact on coordination mechanisms. Project teams have both Finnish and Russian employees most of whom have worked together for years. In most cases teams remain the same, only tasks and projects vary. There is a fair amount of job rotation between the Client and Vendor, too. All this makes the two organizations culturally compatible.

Evolution of coordination mechanisms

After adopting agile methods three-four years ago the Vendor has gradually begun to work in teams that have end-to-end responsibility. In projects today it is only the role of a Product Manager that still always is occupied by a Client's employee. Product development guidelines and processes are the same in the Vendor's and Client's organization. At first teams that had sub teams both in the Client's and Vendor's organization coordinated their activities in the agile way but later a local coordinator was appointed in the Vendor's office to act as an intermediate between the Client's and Vendor's employees.

Now when teams are independent also in the Vendor's organization the Vendor's employees are attending daily, weekly and monthly meetings the same way as the Client's employees. Projects are now shorter but their scope and thus often complexity has grown. Dependencies between all teams and consequently between

all team members have increased because there are no longer component ownerships. Recently there has been some discussion about appointing local ambassadors from the Client's organization to be located in the Vendor's organization, and vice versa. Requests for support and knowledge sharing coming from other teams are not always attended in due course as can be seen from the prints of retrospective meetings held in an ongoing project.

Face-to-face interactive communication has increased with the adoption of agile methods. Communication can be regarded as a means for coordination. However, interviewees repeatedly referred to the process of "communication" instead of "coordination". This occurred regardless of the language used in the interview. It seems the notion "coordination" is often used when actually the speaker means "communication". Consequently, there may be occasions when a manager is believed to be coordinating activities he or she is in fact only communicating. The result is not even non-coordination; the result could be no coordination.

With the adoption of agile methods, coordination has become visible in the way that both the Client's and Vendor's employees can access the same data bases and can meet and discuss with each other without intermediates. On the other hand, coordination has become invisible; it is for the most part hidden and not practiced openly. Managers tend to regard themselves as facilitators. Individual teams as well as individual team members are supposed to take care of coordinating activities. Paradoxically, this has created a situation where coordination is needed more than ever because of the growing number of contact points between teams and team members.

Topics for further research

Different kinds of agile methods have become popular in software development and even when it is offshore outsourced. The Client in the case study is a pioneer in this field but not the only one. Offshore companies in Russia employ agile methods to the extent that some early local research is already available but there are topics deserving further studies such as how work has typically been divided between a Client and Vendor, how good agile methods are in an environment where projects are large and complex and what risks there possibly are in such an arrangement.

Working in distributed teams in global software development is bound to shape team coordination one way or other.

In the agile world coordination takes place among team members, which leads one to reflect on the optimal project team structure and how to build it. Faraj & Sproull (2001, 1555) state that in complex non-routine intellectual tasks team performance means not just having the right expertise. The expertise must be coordinated among team members and the team must be able to recognize where expertise can be located, needed and accessed.

The Client-Vendor relationship in the case study could be defined as co-sourcing. Co-sourcing of software development work would deserve more attention from IS research. Coordination occurs within teams having employees both from a Client and Vendor; responsibilities are shared according to competence. A project can be managed either by a Vendor's or Client's employee.

The Vendor's perspective has been less researched and still, there are more Vendors than ever and their importance is growing in Clients' businesses. It would be most interesting to learn more about Russian software companies, how they adjust to situations where outsourced software development projects are getting increasingly complex and at the same time responsibilities are shared more than they used to be.

Limitations

There are several limitations to this study. Firstly, it was not possible to study coordination mechanisms in individual projects excepting for one that does not qualify for making conclusions regarding other projects, being only a single project of one of the many areas and still ongoing. The discussions with interviewees remained at the level of project activities also because interviewees could not recall details. Projects are not implemented in phases as for instance in Sabherwal's cases (2003). By the end of the interviews I learned that there are project managers that follow a simple waterfall-type phasing within each iteration but it is not a general practice.

Together with the interviewees I could conclude that an ideal procedure for the case study would have been to investigate product logs and look for coordination mechanisms and their evolution there. If I had been an employee of the Client, I

would probably have adopted this method because it seems the product logs represent a treasure chest for research also in other topics than coordination. For an outsider it would be too time-consuming and difficult to get familiar with the Client's way of working and to deduce any concrete findings from product logs in such a short time that usually is available for a thesis. From the Client's point of view, company confidentiality would have become an issue.

Secondly, taking into account the long established relationship between the Client and Vendor I should have approached coordination differently from the start. Two of the interviewees are the Vendor's employees and also have experience from working in the Client's organization and one interviewee has earlier been employed by the Vendor. Thus the Vendor's perspective on coordination between teams and within teams is present in the case study. However, it would have been advantageous in this particular type of relationship to discuss equally with interviewees from both sides since teams have been mixed and regarding coordination practices much depends on how individual team members and teams as entities behave.

Thirdly, there were too many executives among the interviewees. Discussions tended to remain on general level even though many had experience from concrete projects. Executives are inclined to response to questions in a way that is politically correct but not necessarily informative. The group of interviewees is representative as such but there should have been more project managers. On the other hand, in the agile world teams are self organizing. If somebody is officially a manager he or she regards himself or herself more as a facilitator than manager. Coordination mechanisms are adjusted within teams or between teams in the daily, weekly or monthly meetings.

I have carried out this research as an outsider, which has its drawbacks if not advantages. For an outsider it takes a while to get into an organizational culture starting from ways of expressing things, which results in iteration rounds and at worst ends up with false interpretations. On the other hand, an outsider is able to see more than insiders that are too busy to notice changes in their work environment or have simply become blinded by their closeness to it. Thanks to the help from the most supportive interviewees that guided me through the most obvious hazards I think in this case study, however, there has been a good chance to detect approximately the right trends.

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D. Other

Insight to Project Development. Notes from a presentation held by Mr Jukka Talvio[6] 15 March 2004 at Helsinki School of Economics for the course "Management of Information Systems Projects" (37D270).

The Client's Annual Report 2007.

The Client's corporate internet site March 2008.

The Client's product development guidelines from July 2007.

[6] Mr Jukka Talvio was employed by the Client at the time of the lecture.

About Interviews

Positions of the interviewees:

1. Development Manager/Project Manager
2. Development Manager
3. Program Manager/Project Manager, based in St. Petersburg
4. Maintenance Manager, based in St. Petersburg
5. Program Manager
6. Vice President, Research & Development
7. Director, Software Processes and Tools
8. Program Manager

Note on P3 and P4: The persons are currently officially the Vendor's employees but have earlier at some phase been employed by the Client.

Note on P8: The person has left the Client's organization but as a long term employee kindly replied via email according to the same list of themes as those interviewed in person. His comments focused on cultural factors. All other interviewees from P1 to P7 were interviewed face-to-face.

Note on the language used in interviews:

P1, P5 and P6 were interviewed in Finnish. P8 gave his comments in Finnish that were translated into English. The rest were interviewed in English.

Appendix 1. Interview Outline

Coordination mechanisms are discussed first generally then related to some project(s).

1. Interviewee's position in the Client's organization at the time of the nearshored ISD project under discussion

2. In what stages of the nearshored ISD project the interviewee is/has been involved in

3. Characteristics of the nearshored ISD project, its [7]complexity and criticality:

- Describe the project in short: system to be developed, scope, objective (for instance, was/is it a major version; minor version; a service pack; a new product; or a research project; early feature development; something else, what)
- Critical issues for the Client in this project in particular (for instance, time; quality; exceptionally innovative solution; new technology, a new method and its application; something else, what). If possible, please specify in which stage.

4. Coordination mechanisms applied in different stages of the nearshored ISD project:

- Mechanisms used in each stage, why
- What type of mechanism was most used, why
- Who decided on the mechanisms used in each case (the position and role of the person)
- What issues in different project stages affected coordination and why ([8]project and system attributes; [9]cultural factors)

5. Success of the nearshored ISD project in question:

- How successful the project is/was perceived by the Vendor and the Client
- How coordination used in the project contributed to success

6. Comments and suggestions:

- Does the interviewee think that the coordination practices were appropriate
- Any suggestion for improving coordination

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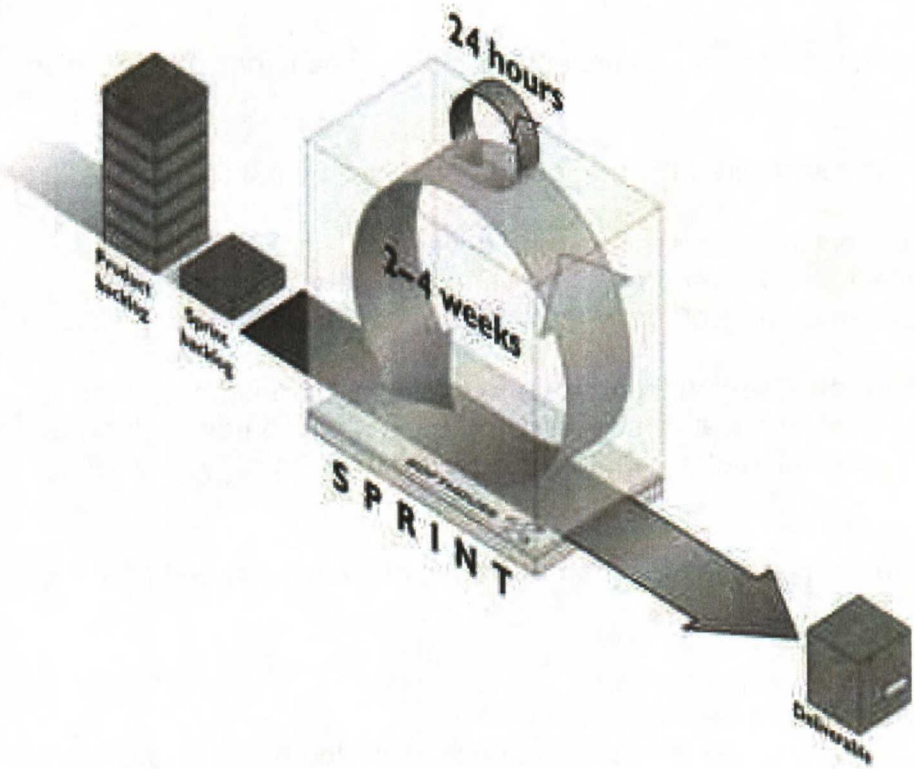
[7] The two terms "complexity" and "criticality" are system attributes influencing coordination (Sabherwal 2003).

[8] Project attributes affecting coordination are: uncertainty, efficiency, equity, and relational quality (ibid.).

[9] Cultural factors can derive from differing organizational or national cultures.

Appendix 2. Scrum Iterative Lifecycle

According to generic agile methods a project can be comprised of n number of iterations. Each iteration, or sprint, can last days or weeks.



After Larman (2004).